

**ENVIRONMENTAL ASSESSMENT
OF INSTALLATION DEVELOPMENT
AT McCONNELL AIR FORCE BASE, KANSAS**



HEADQUARTERS AIR MOBILITY COMMAND



MAY 2007

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14. ABSTRACT

McConnell AFB uses numerous wing-approved plans to project installation development requirements. These plans propose demolition, construction, renovation, and infrastructure improvement activities intended to ensure that the installation can sustain its current and future national security operations and mission-readiness status. These projects include installation development projects contained in the McConnell AFB General Plan and the community of all existing wing-approved development plans. McConnell AFB seeks to improve the continuing installation development process by evaluating in a single EA all actions proposed in the McConnell AFB wing-approved community of plans for installation development, called the Installation Development EA (IDEA). The Proposed Action includes numerous projects, such as new facility construction, facility upgrades, facility repair and renovation, utilities upgrades, community living upgrades, infrastructure upgrades, demolition of aging facilities, and recreational facility upgrades that would be completed/implemented during the next 5 years. The Proposed Action also includes installation development projects approved in the BRAC 2005 process for McConnell AFB. The intent of this IDEA is to address the Proposed Action of implementing installation development actions as found in the community of all existing approved management plans concerning continuing development on McConnell AFB. The scope of the IDEA includes an evaluation of alternatives for the various projects and an analysis of the cumulative effects on the natural and manmade environments. Through this IDEA, McConnell AFB provides a constraints-based environmental impact analysis of installation development actions projected over the next 5 years. A constraints approach enables McConnell AFB to evaluate environmental concerns that exist throughout the installation and those unique to specific areas of the installation. The analysis draws from the knowledge gained from extensive recent evaluations for similar types of projects to determine the direct, indirect, and cumulative effects of projects that would be completed as part of the installation's development. This EA has been prepared to evaluate the Proposed Action and alternatives, including the No Action Alternative. If potentially significant impacts are determined to be associated with the Proposed Action during the course of preparing this IDEA, it might be necessary to prepare an Environmental Impact Statement (EIS). Resource areas addressed in the EA include noise, land use, air quality, safety geological resources, water resources, biological resources, cultural resources, socioeconomic resources and environmental justice, infrastructure, and hazardous materials and waste management. The EA will be made available to the public for comments during development and upon completion.

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ABBREVIATIONS AND ACRONYMS

µg/m ³	micrograms per cubic meter	EIS	Environmental Impact Statement
184 ARW	184th Air Refueling Wing	EO	Executive Order
22 ARW	22nd Air Refueling Wing	EOD	Explosive Ordnance Disposal
22 CES/CEV	22nd Civil Engineering Squadron/Environmental Flight	ERP	Environmental Restoration Program
931 ARG	931st Air Refueling Group	ESA	Endangered Species Act
ACM	asbestos-containing material	FAA	Federal Aviation Administration
AFB	Air Force Base	FB	Facilities Board
AFI	Air Force Instruction	FEMA	Federal Emergency Management Agency
AFPD	Air Force Policy Directive	FONPA	Finding of No Practicable Alternative
AFRC	Air Force Reserve Command	FONSI	Finding of No Significant Impact
AMC	Air Mobility Command	FPPA	Farmland Protection Policy Act
amsl	above mean sea level	ft ²	square feet
APE	Area of Potential Effect	FY	Fiscal Year
AQCR	Air Quality Control Region	HAP	hazardous air pollutant
AST	aboveground storage tank	HAZMART	hazardous materials pharmacy
AT/FP	Anti-Terrorism/Force Protection	HAZWOPER	Hazardous Waste Operations and Emergency Response
BCE	Base Civil Engineering	HQ	Headquarters
BMP	Best Management Practice	HSWA	Hazardous and Solid Waste Amendment
BRAC	Base Realignment and Closure	HUD	U.S. Department of Housing and Urban Development
CAA	Clean Air Act	HVAC	Heating Ventilation and Air Conditioning
CATEX	Categorical Exclusion	ICRMP	Integrated Cultural Resources Management Plan
CEQ	Council on Environmental Quality	IDEA	Installation Development Environmental Assessment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	IICEP	Interagency and Intergovernmental Coordination for Environmental Planning
CFR	Code of Federal Regulations	INRMP	Integrated Natural Resources Management Plan
CO	carbon monoxide	K.S.A.	Kansas Statutes Annotated
CWA	Clean Water Act	KANG	Kansas Air National Guard
dB	decibels	KBS	Kansas Biological Survey
dBA	A-weighted sound level measurements	<i>Continued on Back Cover</i> 	
DNL	Day-Night Average A-weighted Sound Level		
DOD	Department of Defense		
EA	Environmental Assessment		
ECM	earth-covered magazine		
EIAP	Environmental Impact Analysis Process		

***Continued from Front Cover***

KDHE	Kansas Department of Health and Environment	PM _{2.5}	particulate matter equal to or less than 2.5 microns in diameter
KSNHI	Kansas Natural Heritage Inventory	POL	petroleum, oil, and lubricants
LBP	lead-based paint	ppm	parts per million
lft	linear feet	PSD	Prevention of Significant Deterioration
MAJCOM	Major Command	PVC	polyvinyl chloride
MFH	Military Family Housing	QD	Quantity Distance
mg/m ³	milligrams per cubic meter	RCRA	Resource Conservation and Recovery Act
MILCON	Military Construction	ROI	Region of Influence
MSA	Metropolitan Statistical Area	SARA	Superfund Amendments and Reauthorization Act
MSDS	Material Safety Data Sheets	SCC	State Conservation Commission
MSW	Municipal Solid Waste	SHPO	State Historic Preservation Office
NAAQS	National Ambient Air Quality Standards	SINC	Species in Need of Conservation
NAF	Nonappropriated Funds	SIP	State Implementation Plan
NAGPRA	Native American Graves Protection and Repatriation Act	SO ₂	sulfur dioxide
NBC	Nuclear, Biological, and Chemical	SO _x	sulfur oxides
NEPA	National Environmental Policy Act	STAMP	Standard Air Munitions Package
NHPA	National Historic Preservation Act	STRAPP	Standard Tank, Rack, Adapter, and Pylon Package
NO ₂	nitrogen dioxide	SWPPP	Storm Water Pollution Prevention Plan
NO _x	nitrogen oxides	tpy	tons per year
NPDES	National Pollutant Discharge Elimination System	TSCA	Toxic Substances Control Act
NRCS	Natural Resources Conservation Service	U.S.C.	United States Code
NRHP	National Register of Historic Places	USACE	U.S. Army Corps of Engineers
NWI	National Wetlands Inventory	USAF	U.S. Air Force
O&M	Operations and Maintenance	USDA	U.S. Department of Agriculture
O ₃	ozone	USEPA	U.S. Environmental Protection Agency
OSHA	Occupational Safety and Health Administration	USFWS	U.S. Fish and Wildlife Service
Pb	lead	UST	Underground storage tank
pCi/L	picocuries per liter	UXO	unexploded ordnance
PM ₁₀	respirable particulate matter equal to or less than 10 microns in diameter	VOC	volatile organic compound

FINDING OF NO SIGNIFICANT IMPACT

ENVIRONMENTAL ASSESSMENT OF INSTALLATION DEVELOPMENT AT MCCONNELL AIR FORCE BASE, KANSAS

INTRODUCTION

In an effort to improve installation planning and to streamline National Environmental Policy Act (NEPA) compliance, the 22nd Air Refueling Wing (22 ARW) and Headquarters (HQ) Air Mobility Command (AMC) have initiated an evaluation in this Environmental Assessment (EA) of all foreseeable and reasonable planned and programmed projects for the next 5 years. Since the establishment of McConnell Air Force Base (AFB), as with all other United States Air Force (USAF) installations, a continuing activity of installation development has been occurring. Every year in the history of the installation, structures have been demolished, new facilities constructed, and infrastructure upgraded. This document will constitute an Installation Development EA (IDEA). The intent of this IDEA is to address the proposed action of implementing installation development actions with emphasis on avoiding the environmentally sensitive areas on McConnell AFB.

The scope of the IDEA includes an evaluation of alternatives for the various projects and analysis of the cumulative effects on the natural and man-made environments. The proposed action includes numerous projects, such as new facility construction, facility upgrades, facility repair and renovation, utilities upgrades, community living upgrades, infrastructure upgrades, demolition of aging facilities, and recreational upgrades that would be completed or implemented during the next 5 years. This Proposed Action also includes the installation development projects approved in the 2005 Base Realignment and Closure (BRAC) process for McConnell AFB.

PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The purpose of the proposed action is to implement installation development projects on McConnell AFB as found in the community of all existing wing-approved plans, such as the General Plan. The McConnell AFB community of plans was examined to provide a consolidated list of projects that are planned and programmed over the next 5 years for the continued physical development of the installation to support air mobility missions and other readiness training and operational assignments. These plans provide a road map for future development of the installation to accommodate future mission and facility requirements.

The need for the proposed action is to be able to meet current and future mission requirements and national security objectives associated with McConnell AFB. This would involve meeting ongoing mission requirements that necessitate the repair and upgrade of facilities and infrastructure, prepare the installation to accept additional missions from current BRAC actions, and support the morale and welfare of the warfighter.

DESCRIPTION OF THE PROPOSED ACTION

The Proposed Action is to implement continuing installation development projects as found in the community of all existing approved development plans for McConnell AFB. The projects analyzed in the IDEA fall under three categories: facilities demolition projects, facilities construction projects (to include renovations, alterations, and repairs), and infrastructure projects. This assessment also includes the installation development projects approved in the 2005 BRAC process for McConnell AFB. The analysis uses the information obtained from extensive recent environmental impact analysis process (EIAP)

evaluations for similar types of projects to determine the direct, indirect, and cumulative effects of projects as an integral element of the installation's development.

Demolition Projects. McConnell AFB proposes many facility demolition projects over the next 5 years to support growth associated with its future mission requirements. These facilities have been deemed too costly to repair or renovate. The proposed demolition of these facilities would provide approximately 548,000 ft² of usable land space, and would minimize construction of new facilities on undisturbed land.

Construction Projects. McConnell AFB proposes facility construction, renovation, repair, and alteration projects over the next 5 years to support future mission requirements and to comply with force protection criteria. The construction would provide approximately 890,200 ft² of new facilities, many of which would occur after the demolition of older structures. It is estimated that the construction projects on McConnell AFB would add approximately 622,500 ft² of impervious surfaces. The construction of new facilities would be zoned in appropriate land use areas continuing the compatibility of designated land uses.

Infrastructure Projects. McConnell AFB proposes several facility infrastructure projects over the next 5 years to support future mission requirements. Facility infrastructure projects include installation of or upgrades to paved roadways, sidewalks, parking lots, utilities, recreation areas, and security fences. These improvements to the infrastructure would result in new, repaired, and extended utility systems, road structure, pedestrian sidewalks, and parking lots. It is estimated that the infrastructure projects would add approximately 462,000 ft² of impervious surfaces.

SUMMARY OF ANTICIPATED ENVIRONMENTAL IMPACTS ASSOCIATED WITH THE PROPOSED ACTION

Short-term direct minor adverse effects resulting from construction and demolition activities would occur on the noise environment, air quality, safety, geological resources, water resources, and hazardous materials and wastes. Adverse effects associated with construction activities would be localized to the immediate area of construction and would subside following the end of construction in each area affected. Short-term indirect minor beneficial effects on socioeconomics would also occur on the local community from construction costs. However, expenditures associated with construction are short-term and would have no long-lasting community benefits.

Long-term direct minor beneficial effects on land use, safety, and infrastructure would be expected from the construction of new facilities and demolition of existing facilities on the installation.

Short-term minor adverse and long-term minor beneficial effects would be expected as a result of the removal of asbestos-containing material and lead-based paint in older buildings. All removal and abatement procedures would be in accordance with federal, state, and local regulations. Short-term adverse effects on safety as a result of exposure to fumes could occur during construction activities in Environmental Restoration Program (ERP) sites. Construction within and disposal of contamination within ERP sites would be accomplished in accordance with federal, state, and local regulations.

Adverse effects on historical architectural resources could occur as a result of construction within or adjacent to structures that are eligible for the National Register of Historic Places (buildings 9, 1106, 1107, 1218, and 1219). Any construction activities with or adjacent to these buildings would require coordination with the Kansas State Historic Preservation Office to ensure that the historical integrity and feel of the building is not affected. Coordination would avoid, minimize, or mitigate potentially adverse effects on historic properties.

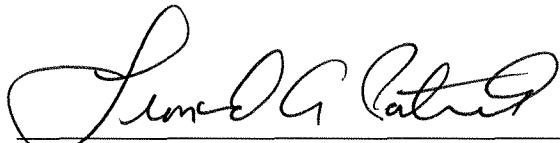
No effects on federally or state-protected species, wetlands, archaeological sites, or traditional cultural properties would be expected because these sensitive resources do not occur near any of the proposed project locations. A current jurisdictional wetlands determination to ensure that wetland boundaries are known would be necessary prior to conducting activities in the vicinity of wetlands or other waters of the United States.

PUBLIC REVIEW AND INTERAGENCY AND INTERGOVERNMENTAL COORDINATION PLANNING

The Interagency and Intergovernmental Coordination for Environmental Planning (IICEP) process was conducted for 30 days beginning June 8, 2006. The draft environmental assessment and draft finding of no significant impact were also made available for a 30-day public review period beginning April 4, 2007.

FINDING OF NO SIGNIFICANT IMPACT

I conclude that the environmental effects of the proposed installation development at McConnell AFB are not significant, that preparation of an environmental impact statement is unnecessary, and that a finding of no significant impact is appropriate. The preparation of the EA is in accordance with NEPA, Council on Environmental Quality regulations, and 32 Code of Federal Regulations Part 989, as amended and is herein incorporated by reference.



LEONARD A. PATRICK, Colonel, USAF
Director, Installations & Mission Support

20 Jun 07

Date

COVER SHEET

ENVIRONMENTAL ASSESSMENT OF INSTALLATION DEVELOPMENT AT MCCONNELL AIR FORCE BASE, KANSAS

Responsible Agencies: U.S. Air Force (USAF); Headquarters Air Mobility Command (AMC); Scott Air Force Base (AFB), Illinois; and McConnell AFB, Kansas.

Affected Location: McConnell AFB, Sedgwick County, Kansas.

Proposed Action: Implementation of approved installation development plans, including installation development resulting from Base Realignment and Closure (BRAC) approved actions.

Report Designation: Draft Environmental Assessment (EA).

Abstract: McConnell AFB uses numerous wing-approved plans to project installation development requirements. These plans propose demolition, construction, renovation, and infrastructure improvement activities intended to ensure that the installation can sustain its current and future national security operations and mission-readiness status. These projects include installation development projects contained in the McConnell AFB General Plan and the community of all existing wing-approved development plans. McConnell AFB seeks to improve the continuing installation development process by evaluating in a single EA all actions proposed in the McConnell AFB wing-approved community of plans for installation development, called the Installation Development EA (IDEA). The Proposed Action includes numerous projects, such as new facility construction, facility upgrades, facility repair and renovation, utilities upgrades, community living upgrades, infrastructure upgrades, demolition of aging facilities, and recreational facility upgrades that would be completed/implemented during the next 5 years. The Proposed Action also includes installation development projects approved in the BRAC 2005 process for McConnell AFB. The intent of this IDEA is to address the Proposed Action of implementing installation development actions as found in the community of all existing approved management plans concerning continuing development on McConnell AFB. The scope of the IDEA includes an evaluation of alternatives for the various projects and an analysis of the cumulative effects on the natural and man-made environments.

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Written comments and inquiries regarding this document should be directed to Mr. Donald Campbell, 22 CES/CEV, 53000 Hutchinson Street, Suite 109, McConnell AFB, KS 67221-3617.

**ENVIRONMENTAL ASSESSMENT
OF
INSTALLATION DEVELOPMENT AT
McCONNELL AIR FORCE BASE, KANSAS**

**HEADQUARTERS AIR MOBILITY COMMAND
COMMUNITY PLANNING BRANCH
507 SYMINGTON DRIVE
SCOTT AIR FORCE BASE, ILLINOIS 62225-5022**

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1. Purpose, Need, and Scope

The 22nd Air Refueling Wing (22 ARW) at McConnell Air Force Base (AFB), Kansas, and Headquarters (HQ) Air Mobility Command (AMC) believe a comprehensive U.S. Air Force (USAF) Environmental Impact Analysis Process (EIAP) document would improve the continuing activity of installation development and streamline the National Environmental Policy Act (NEPA) compliance process. As a result, 22 ARW and HQ AMC have initiated an evaluation in this Environmental Assessment (EA) of all foreseeable and reasonable planned and programmed projects identified for the next 5 years. Since the establishment of McConnell AFB, as with all other USAF installations, a continuing activity of installation development has been occurring. Every year in the history of the installation, structures have been demolished, new facilities constructed, and infrastructure upgraded. This document will constitute an Installation Development EA (IDEA). The intent of this IDEA is to address the Proposed Action of implementing installation development actions as found in the community of all existing approved management plans for the installation concerning continuing development on McConnell AFB. These projects are a compilation of installation development activities as described in the McConnell AFB General Plan (MAFB 2005a) and all other known and wing-approved base plans. The IDEA coordinates land use planning and infrastructure projects, expedites project execution by using early planning, and encourages agency coordination. Base improvements discussed in this IDEA would be initiated as funding becomes available over the next 5 years. In addition to evaluating the projects as described, this EA will serve as a baseline for future environmental analysis of mission and training requirements.

This section includes five subsections: background information on the location and mission of McConnell AFB, a statement of the purpose of and need for the Proposed Action, an overview of the scope of the analysis, a summary of the key environmental compliance requirements, and an introduction to the organization of this IDEA.

1.1 Background

McConnell AFB is a 3,000-acre military installation in Sedgwick County, Kansas, approximately 6 miles southeast of the city of Wichita (**Figure 1-1**). The installation is under the command and control of AMC. McConnell AFB is headquarters to the 22 ARW. In addition to the 22 ARW, McConnell AFB is also home to the Kansas Air National Guard (KANG) 184th Air Refueling Wing (184 ARW), and the Air Force Reserve Command (AFRC) 931st Air Refueling Group (931 ARG). The Boeing Company, Spirit Aviation, and Cessna adjoin the installation and jointly share the airfield with the 22 ARW, 184 ARW, and 931 ARG. The 22 ARW also provides facilities for transient aircraft and operational support for aircraft using the Regional Munitions Storage Area at McConnell AFB. Furthermore, the 22 ARW provides administrative, medical, and logistical support for tenant agencies and the McConnell AFB community.

1.2 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to implement installation development projects on McConnell AFB as found in the community of all existing 22 ARW-approved plans for development on the installation. The community of installation development plans is linked to individual funding programs such as Base Realignment and Closure (BRAC), Military Construction (MILCON), Operations and Maintenance (O&M), Military Family Housing (MFH), Anti-Terrorism/Force Protection (AT/FP), Nonappropriated Funds (NAF), and others. Installation development projects approved in the 2005 BRAC process are included in this IDEA. The McConnell AFB community of plans was examined to provide a consolidated list of projects that are planned and programmed over the next 5 years for the

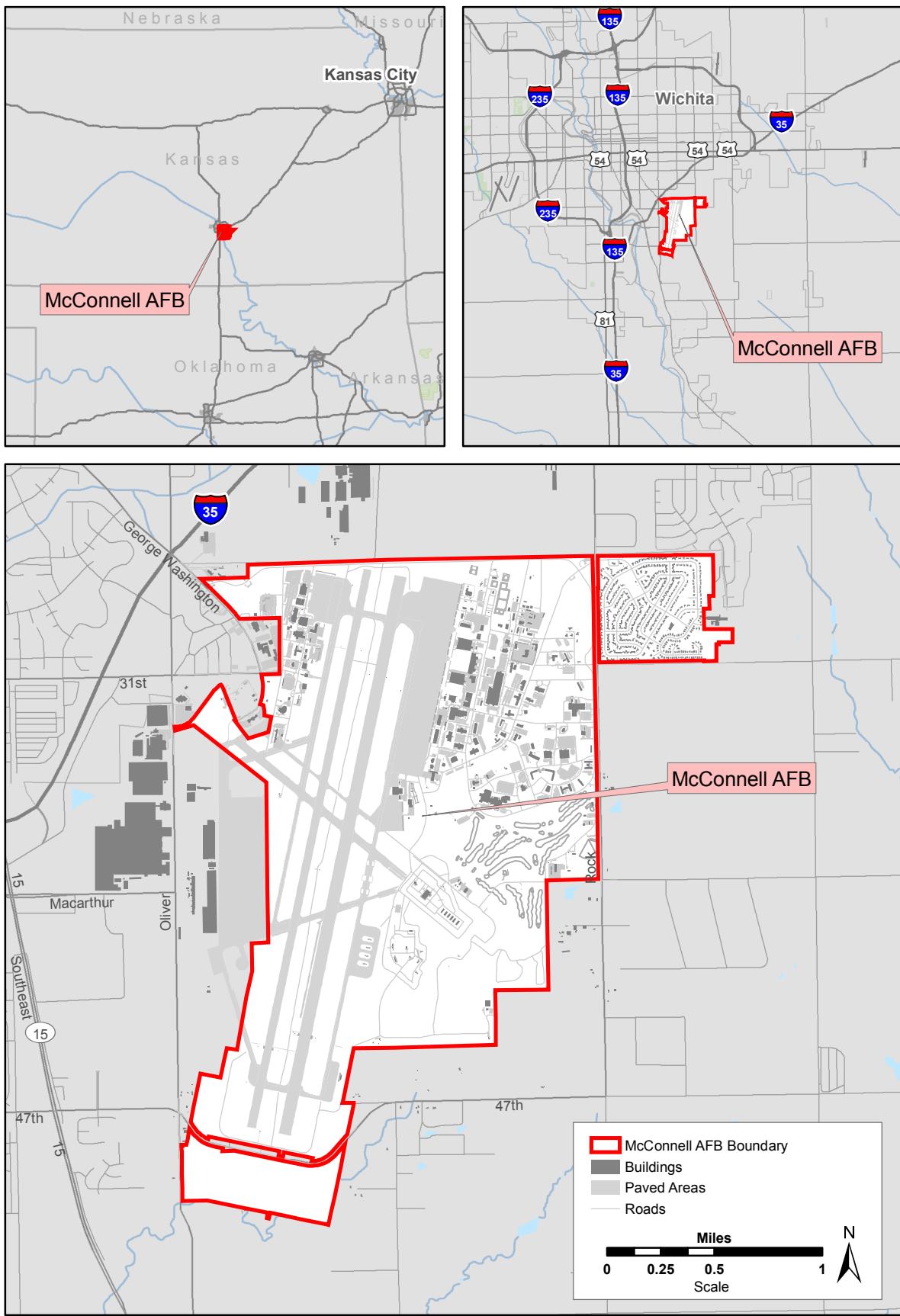


Figure 1-1. Location of McConnell AFB, Kansas

continued physical development of the installation to support air mobility missions and other readiness training and operational assignments. These plans provide a road map for future development of the installation to accommodate future mission and facility requirements. These plans include projects for the installation's future facility development, transportation improvements, airfield and utility infrastructure enhancements, development constraints and opportunities, and land use relationships.

A compilation of all projects from the McConnell AFB wing-approved community of installation development plans addressed in this IDEA is presented in **Appendix A**. Some of the projects identified in the McConnell AFB community of installation development plans are appropriate for the application of Categorical Exclusion (CATEX) rules and therefore are not analyzed in this IDEA.

The need for the Proposed Action is to be able to meet current and future mission requirements and national security objectives associated with McConnell AFB. This would involve meeting ongoing mission requirements that necessitate the repair and upgrade of base utilities, pavements, and facilities; improve the efficiency and effectiveness of forces and provide Distinguished Visitor support with capability to expand; replace older, substandard facilities with new buildings that are on a par with workplaces outside the gate; provide reliable utilities, quality housing, and an efficient transportation system to support McConnell AFB; and prepare to accept additional missions as a result of BRAC actions. In addition, morale and welfare projects that are a critical part of supporting the warfighter are included. Continued development of infrastructure at McConnell AFB must take into account future facilities construction/demolition/renovation, transportation needs, airfield alterations and enhancements, systems improvements, utilities improvements, land use planning, and development constraints and opportunities. Contributions by McConnell AFB to national security, as well as prospects for the assignments of additional missions in the future, dictate that the installation implement planning for the next 5 years. To ensure complete readiness at the installation for any tasks assigned, infrastructure projects must take into account—and be capable of supporting—all functions inherent to a USAF installation. These include aircraft operations and maintenance activities, security, administration, communications, billeting, supply and storage, training, transportation, and community quality of life.

1.3 Scope of the Analysis

McConnell AFB seeks to improve the continuing installation development process by evaluating in a single EA all actions proposed in the McConnell AFB wing-approved community of plans for installation development. The scope of this IDEA includes an evaluation of alternatives for the various projects and an analysis of the cumulative effects on the natural and man-made environments. The Proposed Action includes numerous projects, such as new facility construction, facility upgrades, facility repair and renovation, utilities upgrades, community living upgrades, infrastructure upgrades, demolition of aging facilities, and recreational upgrades that would be completed/implemented during the next 5 years. The Proposed Action also includes the installation development projects approved in the BRAC 2005 process for McConnell AFB.

This IDEA evaluates the impacts of a Proposed Action that encompasses the continuing activities of demolition, construction, and infrastructure repair/improvements inherent to McConnell AFB adapting to ever-evolving mission requirements. This IDEA documents and evaluates the effects of all currently identified activities involved in modernizing and upgrading McConnell AFB to meet future requirements. This IDEA presents and analyzes potentially adverse direct, indirect, and cumulative environmental impacts resulting from implementation of McConnell AFB's installation development (the Proposed Action) with emphasis on avoiding impacts on environmentally sensitive areas.

The scope of this IDEA includes an evaluation of the Proposed Action and the No Action Alternative. None of the projects contained in this IDEA, as part of the Proposed Action, would impact any

environmentally sensitive areas such as wetlands, floodplains, endangered species sites, or cultural resources. Projects that impact such areas or other sensitive environmental or socioeconomic resources would be the subject of separate NEPA analysis.

The Proposed Action, as described in **Section 2**, contains three categories of installation development: demolition, construction (to include renovations, installations, alterations, and repairs), and infrastructure (fences, sidewalks, roads, and utility) projects. These three categories were identified for use in this document because they allow the grouping of development initiatives by generally common elements of their activity and the nature of their potential environmental impacts. Within each category, the IDEA analyzes in detail the environmental impacts resulting from the activities for a subset of representative projects to determine the range of potential impacts to be expected from projects within each group. These categories and the representative projects are described in **Sections 2.1.2, 2.1.3, and 2.1.4** and provide projects ranging in size, acreage disturbed, amounts of air emissions, increases in impervious surface, vegetation disturbed, and other relevant factors associated with environmental and socioeconomic resources. This IDEA also analyzes the siting of construction activities based on environmental constraints. All other projects listed in **Appendix A** are analyzed in detail using the same methodology as applied to the representative projects, and their impacts are summarized in tabular form in **Section 4.4.4**. The complete categorized lists of proposed projects that compose the Proposed Action can be found in **Appendix A**.

The collective analysis of all appropriate projects in a single EA will streamline the NEPA review process; eliminate project fractionation and segmentation; facilitate coordination of land use planning; reduce installation, reviewing agency, and major command (MAJCOM) workloads; provide cost savings; help better evaluate potential cumulative environmental impacts; assist in maintaining a baseline for future analysis; and meet the USAF's EIAP goals.

1.4 Summary of Key Environmental Compliance Requirements

1.4.1 National Environmental Policy Act

NEPA is a Federal statute requiring the identification and analysis of potential environmental impacts of proposed Federal actions before those actions are taken. NEPA established the Council on Environmental Quality (CEQ) that is charged with the development of implementing regulations and ensuring agency compliance with NEPA. CEQ regulations mandate that all Federal agencies use a systematic interdisciplinary approach to environmental planning and the evaluation of actions that might affect the environment.

This process evaluates potential environmental consequences associated with a proposed action and considers alternative courses of action. The intent of NEPA is to protect, restore, or enhance the environment through well-informed Federal decisions.

The process for implementing NEPA is codified in Title 40 Code of Federal Regulations (CFR) 1500–1508, *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*. The CEQ was established under NEPA to implement and oversee Federal policy in this process. To this end, the CEQ regulations specify that an EA be prepared to briefly provide evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI), aid in an agency's compliance with NEPA when an EIS is unnecessary, and facilitate preparation of an EIS when one is necessary.

Air Force Policy Directive (AFPD) 32-70, *Environmental Quality*, states that the USAF will comply with applicable Federal, state, and local environmental laws and regulations, including NEPA. The USAF's implementing regulation for NEPA is EIAP, 32 CFR Part 989, as amended.

1.4.2 Integration of Other Environmental Statutes and Regulations

To demonstrate compliance with NEPA, the planning and decisionmaking process for actions proposed by the USAF and other Federal agencies involves an evaluation of the Proposed Action along with a study of the applicability of other relevant environmental statutes and regulations. Application of the NEPA process, however, does not replace procedural or substantive requirements of other environmental statutes and regulations. It addresses them collectively in the form of an EA or EIS, which enables the decisionmaker to hold a comprehensive view of major environmental issues and requirements associated with the Proposed Action. According to CEQ regulations, the requirements of NEPA must be integrated "with other planning and environmental review procedures required by law or by agency so that all such procedures run concurrently rather than consecutively."

The IDEA will examine potential effects of the Proposed Action and Alternatives on 11 resource areas: noise, land use, air quality, safety, geological resources, water resources, natural resources, cultural resources, socioeconomic resources and environmental justice, infrastructure, and hazardous materials and waste management. These resources were identified as being potentially affected by the Proposed Action and Alternatives and include applicable elements of the human environment that are prompted for review by Executive Order (EO), regulation, or policy. **Appendix B** contains examples of relevant laws, regulations, and other requirements that are often considered as part of the analysis. Where useful to provide better understanding, key provisions of the statutes and EOs will be discussed in more detail in the text of the IDEA.

1.4.3 Interagency Coordination and Public Involvement

One of the fundamental principles of NEPA is to provide public and agency awareness of Federal actions prior to project implementation. The premise of this principle is that the quality of Federal decisions will be enhanced if the general public and local, state, and Federal agencies are offered the opportunity to comment and be involved in the planning process. The Intergovernmental Coordination Act and EO 12372, *Intergovernmental Review of Federal Programs*, require Federal agencies to cooperate with and consider state and local views in implementing a Federal proposal. Air Force Instruction (AFI) 32-7060, *Interagency and Intergovernmental Coordination for Environmental Planning* (IICEP), requires the USAF to implement the IICEP process, which is used for the purpose of facilitating agency coordination and implements scoping requirements.

On June 8, 2006, AMC initiated the IICEP process by notifying relevant Federal, state, and local agencies of the Proposed Action. These agencies were provided a 30-day period to review and comment on the Proposed Action. Three responses were received: one from the U.S. Fish and Wildlife Service (USFWS), one from Sedgwick County, and one from the Kansas Department of Health and Environment (KDHE). The IICEP correspondence letter, distribution list, and agency responses are included in **Appendix C**.

On April 4, 2007, AMC published a Notice of Availability for the Draft EA and Draft FONSI in the *Wichita Eagle*, initiating a 30-day public review period. Copies of the Draft EA and Draft FONSI were also distributed for interagency review. No public comments were received. Several agency comments were received, and these were incorporated into the EA. The Notice of Availability and agency comments on the Draft EA are also included in **Appendix C**.

1.5 Organization of this Document

This IDEA is organized into seven sections. **Section 1** contains background information on McConnell AFB and the location of the Proposed Action, the purpose of and the need for the Proposed Action, the scope of the IDEA analysis, a summary of applicable regulatory requirements, and an introduction to the organization of the EA. **Section 2** provides a detailed description of the Proposed Action, alternatives to the Proposed Action, the No Action Alternative, and a description of the decision to be made and identification of the Preferred Alternative. **Section 3** contains a general description of the biophysical resources and baseline conditions that potentially could be affected by the Proposed Action, alternatives to the Proposed Action, or the No Action Alternative. **Section 4** presents an analysis of the environmental consequences for a range of activities (demolition, construction, infrastructure upgrades/replacements) covering all future installation development. **Section 5** includes an analysis of the potential cumulative impacts on McConnell AFB. **Section 6** lists the preparers of the document. **Section 7** lists the sources of information used in the preparation of the document.

Appendix A presents the list of proposed McConnell AFB installation development projects. **Appendix B** includes descriptions of applicable laws, regulations, policies, and planning criteria. **Appendix C** includes a copy of the IICEP letter mailed to the agencies for this action, the IICEP distribution list, and responses to the IICEP letter. **Appendix D** contains a sample air emissions calculation spreadsheet to show the methodology used for all projects.

2. Description of the Proposed Action and Alternatives

This section presents information on the Proposed Action related to the implementation of installation development as described in the McConnell AFB wing-approved installation development plans. This assessment also includes the installation development projects contained in the approved 2005 BRAC process recommendations for McConnell AFB. **Section 2.1** describes the Proposed Action at McConnell AFB. **Section 2.2** identifies alternatives to the Proposed Action, including the No Action Alternative. **Section 2.3** identifies the decision to be made and the Preferred Alternative.

2.1 Proposed Action

The Proposed Action is to implement continuing installation development actions as found in the community of all existing approved development plans for McConnell AFB. The Proposed Action consists of numerous projects related to installation development. It is intended that the projects contained in this IDEA will be reviewed during a 5-year rotational basis and this document might be updated to accommodate changes. If during the course of the next 5 years any of the projects listed in **Appendix A** change enough to be outside the coverage of the analysis provided in this IDEA, the specified project would be excluded from the NEPA coverage under this IDEA without affecting other projects originally included in the IDEA.

The projects included as the Proposed Action have been organized into three categories (i.e., demolition, construction, and infrastructure upgrade). For the purposes of describing the specific types of projects included as the Proposed Action, representative projects from each of the categories are listed in **Sections 2.1.2, 2.1.3, and 2.1.4**. These representative projects provide examples of the various types of projects within each category; however, the total suite of projects that make up the Proposed Action are listed in **Appendix A** and are evaluated in **Section 4**. The total potential impacts associated with implementation of each of the projects in **Appendix A** are evaluated in this EA.

This IDEA has been prepared using a constraints-based analysis (**Section 2.1.1**). This approach enables a comprehensive evaluation of environmental concerns throughout the base and also those concerns unique to specific areas of McConnell AFB. This analysis uses the information obtained from extensive recent EIAP evaluations for similar types of projects to determine the direct, indirect, and cumulative impacts of projects that would be completed as part of the installation's development plan.

Each proposed project would be sited in accordance with McConnell AFB's future land use categories (see **Figure 2-1**) and would avoid sensitive or constrained areas (see **Figure 2-2**). The exterior and interior design of the new and renovated facilities would follow the design guidelines outlined in the *Air Mobility Commander's Guide for Facilities Excellence* and the *McConnell AFB Architectural Compatibility Design Plan*. This would help develop a consistent and coherent architectural character throughout McConnell AFB. Landscaping would be used to provide an attractive and professional-looking base by using plants, shrubs, and trees to blend with the surrounding environment. AT/FP measures would be incorporated in accordance with the *USAF Installation Force Protection Guide*. All construction would comply with fire and safety codes. The proposed construction projects would be implemented using sustainable design concepts. Sustainable design concepts emphasize state-of-the-art strategies for site development, efficient water and energy use, and improved indoor environmental quality.

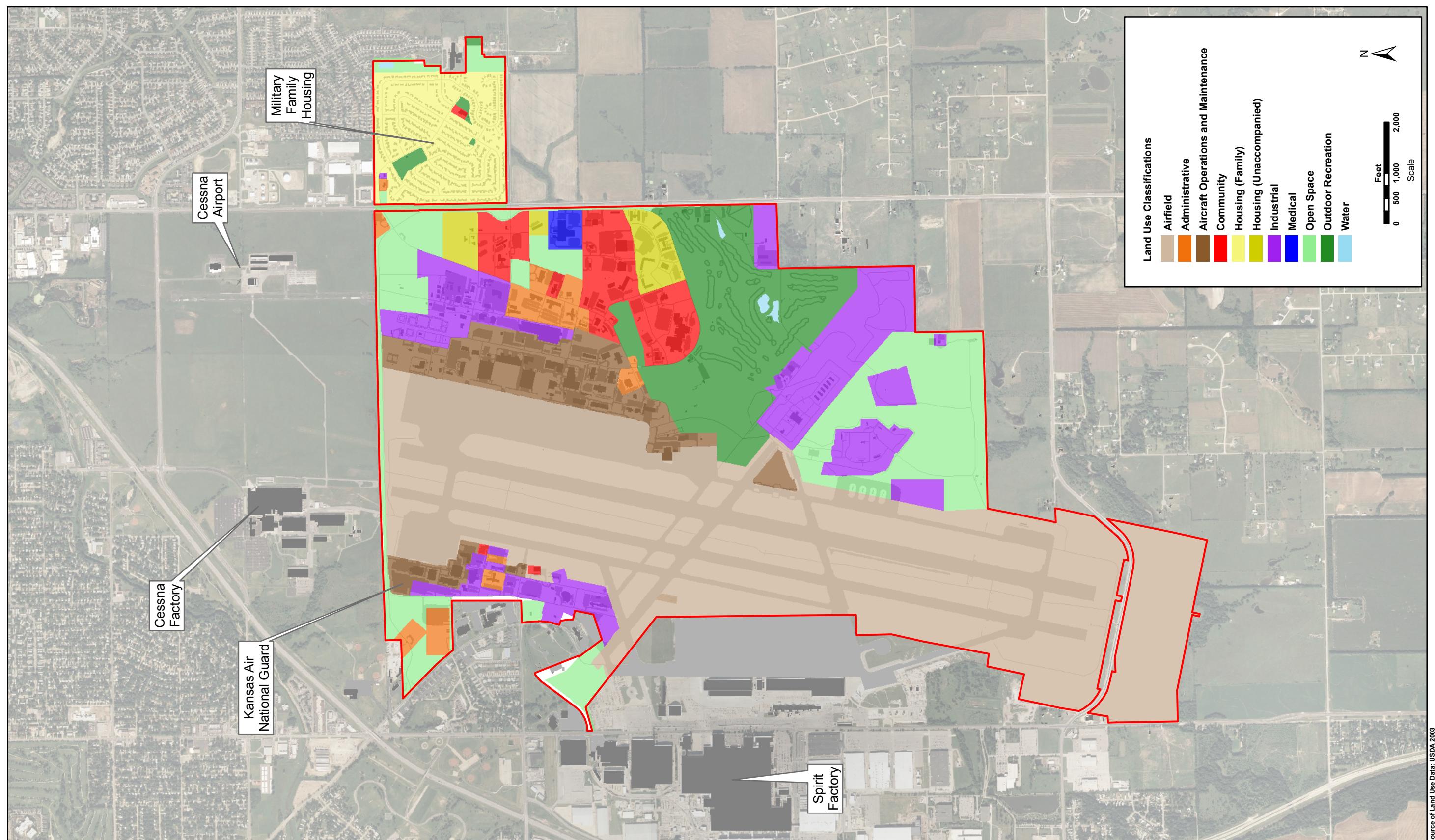
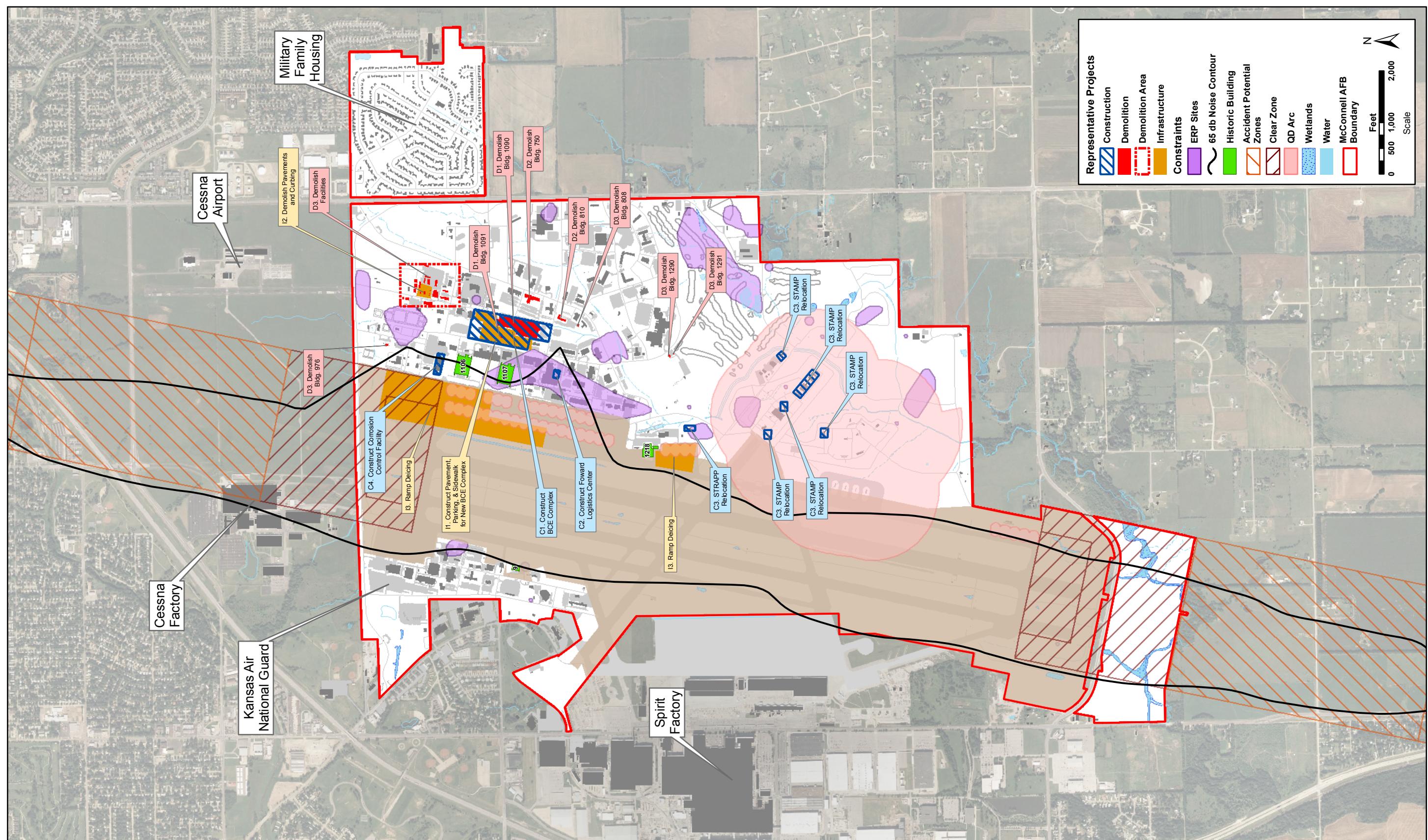


Figure 2-1. McConnell AFB Land Use Map



All projects identified as part of the Proposed Action in this IDEA would avoid sensitive areas. Proposed locations of each representative project in relation to environmental constraints are shown in **Figure 2-2**. The precise layout and design of these projects are in the early planning stages and, therefore, exact locations and layouts are not finalized. Should locations and final layout of the projects differ substantially from those anticipated (in location, layout, or potential environmental consequences), additional environmental analysis would be completed. If it is determined that future projects outside the scope of this IDEA would impact sensitive resources, then separate environmental analysis would be required.

2.1.1 Major Installation Constraints

There are a number of land use, regulated, and mission-related constraints within the boundaries of McConnell AFB that will influence and could limit future development at the installation. The major constraints on McConnell AFB are listed below and depicted in **Figure 2-2**. Some constraint areas overlap and therefore the acreages listed below do not add up to the actual total acreage constrained on McConnell AFB.

- **Airfield Infrastructure, Clear Zones, and Imaginary Surfaces (999 acres).** The airfield includes pavement, runways, overrun, apron and ramp, and arm/disarm pads. Clear zones and imaginary surfaces are areas where nonairfield development is constrained or discouraged for airfield safety. These areas would only allow airfield improvements and projects directly associated with airfield operations. All projects within this area must be approved by the Facilities Board (FB) and airfield management prior to commencing any construction-related activities.
- **Environmental Restoration Program (ERP) Sites (122 acres).** McConnell AFB contains seven active ERP sites and one site under investigation. New facilities may be constructed within certain ERP sites depending upon the level of contamination, clean-up efforts, and land use constraints. Approval of new construction within ERP sites must be obtained by FB and coordinated with 22 Civil Engineering Squadron/Environmental Flight (22 CES/CEV).
- **Wetlands (14 acres).** It is USAF policy not to construct new facilities within the areas containing wetlands, where applicable. To construct within areas containing wetlands, appropriate permits from county, state, and Federal regulatory agencies must be obtained. In addition, in accordance with EO 11990, a Finding of No Practicable Alternative (FONPA) must be approved by HQ AMC.
- **Cultural Resources and Historic Buildings.** There are several eligible historic buildings on McConnell AFB. Renovation or demolition of historic buildings must be coordinated with the State Historic Preservation Office (SHPO), FB, and 22 CES/CEV.
- **Safety Arcs.** Quantity distance (QD) arcs are the minimum prescribed distance between munitions site handling and storage to inhabited areas. There are several areas that are constrained by QD clear zones at McConnell AFB including hot cargo pads and the munitions storage area.

McConnell AFB consists of approximately 3,000 acres. As a general practice, McConnell AFB seeks to avoid, where possible, any disturbance to wetlands and areas designated as historic or culturally sensitive. However, as future mission activities dictate, and due to the expanse of existing constrained areas on McConnell AFB, avoiding or restricting future development within this acreage might not be practical and could limit the installation's ability to successfully accomplish its missions. When these resources cannot be avoided, separate and additional NEPA documentation would occur and coordination with the appropriate regulatory agencies would be completed prior to initiating the action. All construction and

other activities that would occur in these areas would comply with the requirements of the various local, state, and Federal policies and regulations that govern such resources.

2.1.2 Demolition Projects

McConnell AFB proposes 14 facility demolition projects for the next 5 years (see **Appendix A**) to support its future mission requirements. These facilities have been deemed too costly to repair or renovate to meet the future mission needs of McConnell AFB. The demolition of these facilities would make usable land space available, minimizing the area of undisturbed land required for new sitings. **Table 2-1** identifies projects that would be representative of the types of demolition projects proposed. The proposed locations for these projects in relation to constraints are shown in **Figure 2-2**. These demolition projects have been selected as representative projects because it is believed that they would have the highest potential to impact the natural and human environments.

Table 2-1. Representative Demolition Projects

Project Identification Number and Title	Fiscal Year	Area Demolished (ft ²)
D1. Demolish Buildings 1090 and 1091	2009	214,230
D2. Demolish Buildings 750 and 810	20xx	52,000
D3. Demolish Buildings 697, 682, 685, 688, 689, 690, 692, 948, 695, 696, 691, 693, 699, 701, 937, 938, 976, 1290, 694, 683, 681, 684, 1291, and 808	20xx	87,500

2.1.3 Construction Projects

McConnell AFB proposes 25 facility construction, renovation, repair, and alteration projects over the next 5 years (see **Appendix A**) to support its future mission requirements and to comply with force protection criteria. Many of the construction projects would occur only after the demolition of older structures. The construction of new facilities would be zoned in appropriate land use areas continuing the compatibility of designated land uses. **Table 2-2** identifies projects that would be representative of the type of construction projects proposed. The proposed locations for these projects in relation to constraints are shown in **Figure 2-2**. These construction projects have been selected as representative projects because it is believed that they would have the highest potential to impact the natural and human environments.

Table 2-2. Representative Construction Projects

Project Identification Number and Title	Fiscal Year	Area Constructed (ft ²)
C1. Construct BCE Maintenance Complex	20xx	136,500
C2. Forward Logistics Center (Building 1169)	2009	10,000
C3. BRAC STAMP/STRAPP Relocation	2008	105,150
C4. Construct Corrosion Control Facility, Phase II	2010	51,000

Key:

BCE = Base Civil Engineering

STRAPP = Standard Tank, Rack, Adapter, and Pylon Package

STAMP = Standard Air Munitions Package

2.1.4 Infrastructure Projects

McConnell AFB proposes 38 facility infrastructure projects over the next 5 years (**Appendix A**) to support future mission requirements and to comply with force protection requirements. Facility infrastructure projects include installation or upgrades to paved roadways, sidewalks, parking lots, utilities, recreation, and fences to improve the installation infrastructure capacity to meet the demands of the future. The improvements in infrastructure projects would result in several thousand linear feet (lft) of new, repaired, and extended sidewalks, roads, and parking lots. **Table 2-3** identifies projects that would be representative of the type of infrastructure projects proposed. The proposed locations for these projects in relation to constraints are shown in **Figure 2-2**. These facility infrastructure projects have been selected as representative projects because it is believed that they would have the highest potential to impact the natural and human environments.

Table 2-3. Representative Infrastructure Projects

Project Identification Number and Title	Fiscal Year	Project Size (ft ²)
I1. Construct Pavements for BCE Complex	2013	379,200
I2. Demolish Pavements of Existing BCE Facilities	2013	66,200
I3. Ramp Deicing Improvements	2007	10,000

Key:

BCE = Base Civil Engineering

2.1.5 Summary of Proposed Activities

As a result of full implementation of the Proposed Action (including all projects identified in **Appendix A**), there would be approximately 686,730 ft² of demolished buildings, resulting in a decrease of impervious surface of approximately 548,010 ft². Over the course of the next 5 years, there would be approximately 890,200 ft² of new facilities constructed, resulting in an anticipated increase of 622,500 ft² of impervious surface (some of the facilities would be multiple levels). Additionally, there would be infrastructure upgrades and improvements. These infrastructure projects would disturb 2.3 million ft² of area and increase impervious surfaces by approximately 462,000 ft². **Table 2-4** summarizes the anticipated changes.

Table 2-4. Change in Impervious Surface

Project Type	Total Project Area	Change in Impervious Surface
Demolition	686,730 ft ²	-548,010 ft ²
Construction	890,200 ft ²	+622,500 ft ²
Infrastructure	2,344,595 ft ²	+462,000 ft ²
Total	3,921,525 ft² (90 acres)	+536,490 ft² (+12 acres)

Note: Change in impervious surface is not necessarily equivalent to the project area square footage because some facilities proposed for demolition are multiple stories, and many new facilities would be multiple stories. Furthermore, many infrastructure projects would include removal of pavements, or would disturb area but not add impervious surfaces.

2.2 Alternatives

During development of the McConnell AFB installation development plans and during the project siting phase, alternative locations for construction and infrastructure projects were evaluated and the best possible solution for project siting was selected based on numerous criteria (e.g., collocation of like services, availability of site). Based on this evaluation, the proposed locations for each of the construction and infrastructure projects were determined to be optimal (see **Figures 2-1 and 2-2**). With respect to alternatives for the demolition projects, each of these were also evaluated for potential reuse options and none were considered suitable for reuse.

Upon completion of the IDEA, any subset of the included projects could be implemented based upon availability of funding. All of the IDEA projects are evaluated individually and cumulatively in this EA to determine if the consequences of implementation would cause substantive impacts on the human and natural environments of McConnell AFB and surrounding areas. Subsets of projects, considered as alternatives, were not carried forward for further independent analysis based on the determination that subsets would not cause any additional impacts beyond that of the Proposed Action.

The individual projects would be prioritized and implemented as funding becomes available. The Proposed Action encompasses all the currently identified priority projects and the analysis describes the specific and cumulative consequences of implementing the IDEA plan. Since project phasing is expected to occur based on the availability of funding, no phasing alternatives were carried forward for independent analysis.

2.2.1 Alternative 1 – Acquire Additional Land Surrounding McConnell AFB

Under this alternative, McConnell AFB would purchase land outside the installation's present boundaries to construct some of the facilities needed for future requirements. However, the Department of Defense (DOD) discourages installations from acquiring more land through purchases. The DOD is attempting to dispose of as many acres as possible of underused land at many installations in the United States.

McConnell AFB is a highly developed, mature installation, yet still has numerous opportunities for further development. There are approximately 300 acres of developable open space on McConnell AFB. Other opportunities involve redevelopment of sites where existing structures could be demolished or infill development on parcels surrounded by existing uses. Because there is so much land available for development on McConnell AFB and the DOD discourages installations from acquiring more land, this alternative is not considered a viable alternative and is eliminated from further detailed analysis in the IDEA.

2.2.2 Alternative 2 – Lease Additional Facilities in the Surrounding Community

Under this alternative, McConnell AFB would lease office and warehouse space in the surrounding community to house personnel and provide space for mission operations. This alternative would result in an insufficient span of control for the command and control function. The leased facilities would have great limitations in meeting the DOD force protection requirements, resulting in additional costs. This alternative is not considered a viable alternative and is eliminated from further detailed analysis in the IDEA.

2.2.3 No Action Alternative

Under the No Action Alternative, the 22 ARW would not implement the projects proposed in the installation's community of plans. In general, implementation of the No Action Alternative would require that the 22 ARW continue to operate under substandard, inefficient, and in some cases, unsafe conditions. Under the No Action Alternative, these deficiencies would impair the 22 ARW's future ability to successfully sustain current and future national security objectives and other mission requirements.

Through implementation of the No Action Alternative, future installation development actions would continue to be evaluated for potential effects on an individual project basis. The preparation of separate NEPA documents would be required to evaluate potential environmental. This alternative will be carried forward for analysis as a baseline against which the impacts of the Proposed Action and alternatives can be evaluated.

2.3 Decision to be Made and Identification of the Preferred Alternative

In this IDEA, McConnell AFB will evaluate whether the Proposed Action would result in any significant impacts. If such impacts are predicted, McConnell AFB would provide mitigation to reduce impacts to below the level of significance, undertake the preparation of an EIS addressing the Proposed Action, or abandon the Proposed Action. The EA will also be used to guide McConnell AFB in implementing the Proposed Action in a manner consistent with USAF standards for environmental stewardship. The Preferred Alternative for the Proposed Action is set forth in **Section 2.1**.

3. Affected Environment

This section describes the environmental and socioeconomic resources and conditions most likely to be affected by the Proposed Action and provides information to serve as a baseline from which to identify and evaluate environmental and socioeconomic consequences likely to result from implementation of the Proposed Action. Baseline conditions represent current conditions. In compliance with NEPA, CEQ guidelines, and 32 CFR Part 989, as amended, the description of the affected environment focuses on those resources and conditions potentially subject to impacts.

3.1 Noise

3.1.1 Definition of the Resource

Noise and sound share the same physical aspects, but noise is considered a disturbance while sound is defined as an auditory effect. Noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise annoying. Human response to increased noise levels varies according to the source type, characteristics of the noise source, distance between source and receptor, receptor sensitivity, weather, and time of day.

Sound is measured with instruments that record instantaneous sound levels in decibels (dB). A-weighted sound level measurements (dBA) are used to characterize sound levels that can be sensed by the human ear. “A-weighted” denotes the adjustment of the frequency content of a noise event to represent the way in which the average human ear responds to the noise event. All sound levels analyzed in this EA are A-weighted.

Day-Night Average A-Weighted Sound Level. Noise levels, resulting from multiple single-events, are used to characterize community noise effects from aircraft or sustaining road and building construction activity and are measured in the Day-Night Average A-weighted Sound Level (DNL). This noise metric incorporates a “penalty” for evening and nighttime noise events to account for increased annoyance. DNL is the energy-averaged sound level measured over a 24-hour period, with a 10-dB penalty assigned to noise events occurring between 10:00 p.m. and 7:00 a.m. DNL values are obtained by averaging sound exposure level values for a given 24-hour period. DNL is the preferred noise metric of the U.S. Department of Housing and Urban Development (HUD), the Federal Aviation Administration (FAA), the U.S. Environmental Protection Agency (USEPA), and DOD for modeling airport environs.

Most people are exposed to sound levels of DNL 50 to 55 dBA or higher on a daily basis. Noise levels in residential areas vary depending on the housing density and location. As shown on **Table 3-1**, a normal suburban area is about 55 dBA, which increases to 60 dBA for an urban residential area and 80 dBA in the downtown section of a city.

3.1.2 Existing Conditions

Ambient Noise Environment. McConnell AFB is located near the south central part of the state of Kansas, about 7 miles southeast of the city of Wichita. The land surrounding McConnell AFB is categorized as a combination of agricultural, residential, industrial, and vacant. Noise-sensitive land is to the north, west, and southeast of the installation.

Table 3-1. Typical Outdoor Noise Levels

Day-Night Noise Level	Location
50 dBA	Residential area in a small town or quiet suburban area
55 dBA	Suburban residential area
60 dBA	Urban residential area
65 dBA	Noisy urban residential area
70 dBA	Very noisy urban residential area
80 dBA	City noise (downtown of major metropolitan area)
88 dBA	3rd floor apartment in a major city next to a freeway

Source: FHWA 1980

Transportation routes near McConnell AFB include Interstates 35, 135, and 235; U.S. Route 400; and State Route 15. Interstate 35 is 1 mile west of McConnell AFB and runs southwest and northeast around the city of Wichita. Interstates 135 and 235 are 2 miles and 4 miles, respectively, to the west of the installation. U.S. Route 400 traverses west and east, 3 miles north of McConnell AFB. State Route 15 runs northwest to southeast about 1 mile west of McConnell AFB. Although most of the land directly adjacent to McConnell AFB is agricultural or light residential, many of these roads provide direct access to the city of Wichita. Background noise caused by traffic along these roads could possibly be a significant issue.

The Cessna Aircraft Field Airport is 2.3 miles northeast of McConnell AFB. The Raytheon/Beech Factory Airport is 5.8 miles northeast, and Colonel James Jabara Airport is 9.2 miles north. The Wichita Mid-Continent Airport is 9.2 miles northwest of McConnell AFB. The Cessna facility adjoins the installation, as does a Boeing Company facility. Both of these companies jointly share the airfield with the 22 ARW. As a result of the close proximity of all of these airfields, it is likely that they would all add to the general noise environment around McConnell AFB.

With the exception of increased aircraft noise in some areas adjacent to McConnell AFB and Wichita Mid-Continent Airport, the ambient environment around McConnell AFB is likely to be relatively low. The land use in the region indicates that the noise level would fall into the category of a small town or quiet suburban area of approximately 50 dBA, as shown on **Table 3-1**.

Construction Sound Levels. Building construction, modification, and demolition work can cause an increase in sound that is well above the ambient level. A variety of sounds come from graders, pavers, trucks, welders, and other work processes. **Table 3-2** lists noise levels associated with common types of construction equipment that would likely be used under the Proposed Action. Construction equipment usually exceeds the ambient sound levels by 20 to 25 dBA in an urban environment and up to 30 to 35 dBA in a quiet suburban area.

3.2 Land Use

3.2.1 Definition of the Resource

The term “land use” refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. In many cases, land use descriptions are codified in local

Table 3-2. Predicted Noise Levels for Construction Equipment

Construction Category and Equipment	Predicted Noise Level at 50 feet (dBA)
Grading	
Bulldozer	87
Grader	85
Water Truck	88
Paving	
Paver	89
Roller	74
Demolition	
Loader	85
Haul Truck	88
Building Construction	
Generator Saw	81
Industrial Saw	83
Welder	74
Truck	80
Forklift	67
Crane	83

Source: COL 2001

zoning laws. There is, however, no nationally recognized convention or uniform terminology for describing land use categories. As a result, the meanings of various land use descriptions, “labels,” and definitions vary among jurisdictions.

Natural conditions of property can be described or categorized as being unimproved, undeveloped, conservation or preservation area, and a natural or scenic area. There are a wide variety of land use categories resulting from human activity. Descriptive terms often used include residential, commercial, industrial, agricultural, institutional, and recreational.

Two main objectives of land use planning are to ensure orderly growth and compatible uses among adjacent property parcels or areas. Compatibility among land uses fosters the societal interest of obtaining the highest and best uses of real property. Tools supporting land use planning include written master plans/management plans and zoning regulations. In appropriate cases, the locations and extent of proposed actions need to be evaluated for their potential effects on project site and adjacent land uses. The foremost factor affecting a proposed action in terms of land use is its compliance with any applicable land use or zoning regulations. Other relevant factors include matters such as existing land use at the project site, the types of land uses on adjacent properties and their proximity to a proposed action, the duration of a proposed activity, and its “permanence.”

In the context of aircraft operations, land use compatibility is also described in the context of noise levels. As described in **Section 3.1**, a DNL of 65 dB is useful to recognize as a level that, when exceeded, is normally not compatible with residential land use.

3.2.2 Existing Conditions

McConnell AFB is in south-central Kansas, in the county of Sedgwick, just outside of the city of Wichita. McConnell AFB encompasses approximately 3,000 acres owned by the U.S. government. The city of Wichita and Sedgwick County established the Wichita-Sedgwick County Metropolitan Planning Commission to coordinate areawide planning in the city and unincorporated areas of the county. Land use surrounding the installation includes residential, commercial, open space, and rural, with agricultural and residential lands bordering the installation to the east and south, and industrial facilities to the north and west (MAFB 2005a).

The activities and operations at McConnell AFB are grouped by functional areas and land use categories including airfield, aircraft operations and maintenance, industrial, administrative, community, medical, accompanied housing, unaccompanied housing, open space, and outdoor recreation. The two primary land use categories are airfield and open space, which account for more than 55 percent of the installation's acreage (MAFB 2005a). Most facilities are within the aircraft operations and maintenance, industrial, and housing land uses. Existing land uses are shown in **Figure 2-1**.

Growth in the vicinity of McConnell AFB has been primarily to the west, east, and northeast of the city of Wichita over the past two decades. The area north of the installation contains a mixture of residential, commercial, and open space land uses. The Cessna facility lies directly north of McConnell AFB. Industrial areas are centered around three major airfields on the eastern side of Wichita (MAFB 2005a).

To the west of McConnell AFB, land use is also a mixture of residential, commercial, and open space. The Boeing Company operates on the western side of McConnell AFB making up the largest portion of industrial land use west of the installation. The areas east and south of the installation are predominantly rural with residential land uses scattered throughout the regions (MAFB 2005a).

The land surrounding McConnell AFB that does not lie within the adjacent municipalities is under Sedgwick County's jurisdiction. The majority of the land to the south and east of the installation is included in this category and consists mostly of vacant or agricultural areas. Residential areas lie to the northwest, west, and northeast and industrial land is north and west of McConnell AFB. There are no state or Federal wildlife reserves or outdoor recreational areas within a 5-mile radius of McConnell AFB (MAFB 2005a).

3.3 Air Quality

3.3.1 Definition of the Resource

In accordance with Federal Clean Air Act (CAA) requirements, the air quality in a given region or area is measured by the concentration of various pollutants in the atmosphere. The measurements of these "criteria pollutants" in ambient air are expressed in units of parts per million (ppm), milligrams per cubic meter (mg/m³), or micrograms per cubic meter (µg/m³). The air quality in a region is a result not only of the types and quantities of atmospheric pollutants and pollutant sources in an area, but also surface topography, the size of the topological "air basin," and the prevailing meteorological conditions.

The CAA directed USEPA to develop, implement, and enforce strong environmental regulations that would ensure clean and healthy ambient air quality. To protect public health and welfare, USEPA

developed numerical concentration-based standards, or National Ambient Air Quality Standards (NAAQS), for pollutants that have been determined to impact human health and the environment. USEPA established both primary and secondary NAAQS under the provisions of the CAA. NAAQS are currently established for six criteria air pollutants: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable particulate matter (including particulate matter equal to or less than 10 microns in diameter [PM_{10}] and particulate matter equal to or less than 2.5 microns in diameter [$PM_{2.5}$]), and lead (Pb). The primary NAAQS represent maximum levels of background air pollution that are considered safe, with an adequate margin of safety to protect public health. Secondary NAAQS represent the maximum pollutant concentration necessary to protect vegetation, crops, and other public resources along with maintaining visibility standards. **Table 3-3** presents the primary and secondary USEPA NAAQS (USEPA 2004a).

Although O_3 is considered a criteria air pollutant and is measurable in the atmosphere, it is not often considered a regulated air pollutant when calculating emissions because O_3 is typically not emitted directly from most emissions sources. O_3 is formed in the atmosphere by photochemical reactions involving sunlight and previously emitted pollutants or “ O_3 precursors.” These O_3 precursors consist primarily of nitrogen oxides (NO_x) and volatile organic compounds (VOCs) that are directly emitted from a wide range of emissions sources. For this reason, regulatory agencies attempt to limit atmospheric O_3 concentrations by controlling VOC pollutants (also identified as reactive organic gases) and NO_2 .

As authorized by the CAA, USEPA has delegated responsibility for ensuring compliance with NAAQS to the states and local agencies. As such, each state must develop air pollutant control programs and promulgate regulations and rules that focus on meeting NAAQS and maintaining healthy ambient air quality levels. These programs are detailed in State Implementation Plans (SIPs) that must be developed by each state or local regulatory agency and approved by USEPA. A SIP is a compilation of regulations, strategies, schedules, and enforcement actions designed to move the state into compliance with all NAAQS. Any changes to the compliance schedule or plan (e.g., new regulations, emissions budgets, controls) must be incorporated into the SIP and approved by USEPA.

In 1997, USEPA initiated work on new General Conformity rules and guidance to reflect the new 8-hour O_3 , $PM_{2.5}$, and regional haze standards that were promulgated in that year. The 1-hour O_3 standard will no longer apply to an area 1 year after the effective date of the designation of that area for the 8-hour O_3 NAAQS. The effective designation date for most areas is June 15, 2005 (USEPA 2004a). USEPA designated $PM_{2.5}$ nonattainment areas in December 2004, and no area in Kansas was identified as being nonattainment for the $PM_{2.5}$ standard.

The General Conformity Rule and the promulgated regulations found in 40 CFR Part 93 exempt certain Federal actions from conformity determinations (e.g., contaminated site cleanup and natural emergency response activities). Other Federal actions are assumed to conform if total indirect and direct project emissions are below *de minimis* levels presented in 40 CFR 93.153. The threshold levels (in tons of pollutant per year) depend upon the nonattainment status that USEPA has assigned to a nonattainment area. Once the net change in nonattainment pollutants is calculated, the Federal agency must compare them to the *de minimis* thresholds.

Title V of the CAA Amendments of 1990 requires states and local agencies to permit major stationary sources. A major stationary source is a facility (i.e., plant, installation, or activity) that has the potential to emit more than 100 tons per year (tpy) of any one criteria air pollutant, 10 tpy of a hazardous air pollutant, or 25 tpy of any combination of hazardous air pollutants. However, lower pollutant-specific “major source” permitting thresholds apply in nonattainment areas. For example, the Title V permitting threshold for an “extreme” O_3 nonattainment area is 10 tpy of potential VOC or NO_x emissions. The

Table 3-3. National Ambient Air Quality Standards

Pollutant	Standard Value		Standard Type
CO			
8-hour Average ^a	9 ppm	(10 mg/m ³)	Primary and Secondary
1-hour Average ^a	35 ppm	(40 mg/m ³)	Primary
NO₂			
Annual Arithmetic Mean	0.053 ppm	(100 µg/m ³)	Primary and Secondary
O₃			
8-hour Average ^b	0.08 ppm	(157 µg/m ³)	Primary and Secondary
1-hour Average ^c	0.12 ppm	(240 µg/m ³)	Primary and Secondary
Pb			
Quarterly Average	--	1.5 µg/m ³	Primary and Secondary
PM₁₀			
Annual Arithmetic Mean ^d	--	50 µg/m ³	Primary and Secondary
24-hour Average ^a	--	150 µg/m ³	Primary and Secondary
PM_{2.5}			
Annual Arithmetic Mean ^e	--	15 µg/m ³	Primary and Secondary
24-hour Average ^f	--	65 µg/m ³	Primary and Secondary
SO₂			
Annual Arithmetic Mean	0.03 ppm	(80 µg/m ³)	Primary
24-hour Average ^a	0.14 ppm	(365 µg/m ³)	Primary
3-hour Average ^a	0.5 ppm	(1,300 µg/m ³)	Secondary

Source: USEPA 2004a

Notes: Parenthetical values are approximate equivalent concentrations.

^a Not to be exceeded more than once per year.

^b To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.

^c (a) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is ≤ 1 . (b) As of June 15, 2005, USEPA revoked the 1-hour ozone standard in all areas except the 14 8-hour ozone nonattainment Early Action Compact Areas.

^d To attain this standard, the expected annual arithmetic mean PM₁₀ concentration at each monitor within an area must not exceed 50 µg/m³.

^e To attain this standard, the 3-year average of the annual arithmetic mean PM_{2.5} concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m³.

^f To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 65 µg/m³.

purpose of the permitting rule is to establish regulatory control over large, industrial-type activities and monitor their impact on air quality. Synthetic minor sources are those facilities that would be regulated under the air operating permit program but have opted to keep their emissions limits lower than the threshold for the program.

Federal Prevention of Significant Deterioration (PSD) regulations also define air pollutant emissions from proposed major stationary sources or modifications to be “significant” if (1) a proposed project is within 10 kilometers of any Class I area, and (2) regulated pollutant emissions would cause an increase in the 24-hour average concentration of any regulated pollutant in the Class I area of 1 $\mu\text{g}/\text{m}^3$ or more [40 CFR 52.21(b)(23)(iii)]. PSD regulations also define ambient air increments, limiting the allowable increases to any area’s baseline air contaminant concentrations, based on the area’s designation as Class I, II, or III [40 CFR 52.21(c)]. Because McConnell AFB is not within 10 kilometers of any Class I area, PSD regulations do not apply and are not discussed further in this EA.

3.3.2 Existing Conditions

McConnell AFB is in Sedgwick County, Kansas, approximately 6 miles southeast of the city of Wichita (**Figure 1-1**). Sedgwick County is in attainment with all criteria pollutants (USEPA 2004b).

The KDHE is responsible for implementation of the CAA. McConnell AFB received on January 22, 2004, a new Class II Permit-By-Rule Operating Permit which supercedes a previous Synthetic Minor Permit. This new permit regulates McConnell AFB stationary sources to emit less than 50 percent of the major source thresholds. For the first compliance demonstration period of McConnell’s new permit, KDHE agreed to allow McConnell AFB to achieve demonstration by scaling worst-case actual emissions to those calculated for the previous reporting period.

Boilers and stationary generators are the largest contributors of criteria pollutants. Other stationary source activities at McConnell AFB contribute very little to the criteria pollutant categories of PM, CO, NO_x , and sulfur oxides (SO_x), but contribute significantly to VOCs and hazardous air pollutants (HAPs). These sources include bulk fuel storage and transfer, fuel dispensing, service stations, solvent degreasing, surface coating, and chemical usage/fugitive emissions. The amounts of fuels and chemicals consumed annually at McConnell AFB remain fairly consistent each year. The paint booths at Corrosion Control, Transportation, and Auto Hobby remain the greatest source of VOC emissions, while the fuel storage and transport operations and the chemical usage at McConnell AFB contribute the greatest emissions of HAPs. Combined, these additional sources contribute approximately 11.45 tpy of VOC and 2.35 tpy of HAPs in actual emissions.

The total actual emissions at McConnell AFB include other sources which contribute minuscule amounts of air pollutants. Criteria pollutants and HAPs from sources such as the small arms range, explosive ordnance range, woodworking facilities, welding operations, and other contributors are scaled from similar actual emissions from calendar year 2002. The total actual emissions for McConnell AFB are listed in **Table 3-4**.

Table 3-4. Total Criteria Pollutant Emissions for 2005

Pollutant	Actual Emissions (tpy)
PM	2.15
CO	16.65
NO_x	23.46
SO_x	9.46
VOC	18.50

The major source threshold limit quantities for criteria pollutants and VOC are 100 tpy, and for total HAPs are 25 tpy. The following table compares these threshold limits with the percentage of this amount actually emitted by the combined total of McConnell AFB stationary sources. All actual emissions fall well under the prescribed 50 percent of major source thresholds as stated in McConnell AFB's Permit-by-Rule air operating permit as presented in **Table 3-5**.

Table 3-5. Percentage of Threshold Values

Pollutant	Major Source Threshold	McConnell AFB's Percentage
PM	100 tpy	2.15%
CO	100 tpy	15.25%
NO _x	100 tpy	20.50%
SO _x	100 tpy	7.25%
VOC	100 tpy	18.50%
HAPs	25 tpy	11.2%

3.4 Safety

3.4.1 Definition of the Resource

A safe environment is one in which there is no, or an optimally reduced, potential for death, serious bodily injury or illness, or property damage. Human health and safety addresses (1) workers' health and safety during demolition activities and facilities construction, and (2) public safety during demolition and construction activities and during subsequent operations of those facilities.

Construction site safety is largely a matter of adherence to regulatory requirements imposed for the benefit of employees and implementation of operational practices that reduce risks of illness, injury, death, and property damage. The health and safety of onsite military and civilian workers are safeguarded by numerous DOD and USAF regulations designed to comply with standards issued by the Occupational Safety and Health Administration (OSHA) and USEPA. These standards specify the amount and type of training required for industrial workers, the use of protective equipment and clothing, engineering controls, and maximum exposure limits for workplace stressors.

Safety and accident hazards can often be identified and reduced or eliminated. Necessary elements for an accident-prone situation or environment include the presence of the hazard itself together with the exposed (and possibly susceptible) population. The degree of exposure depends primarily on the proximity of the hazard to the population. Activities that can be hazardous include transportation, maintenance and repair activities, and the creation of highly noisy environments. The proper operation, maintenance, and repair of vehicles and equipment carry important safety implications. Any facility or human-use area with potential explosive or other rapid oxidation process creates unsafe environments for nearby populations. Extremely noisy environments can also mask verbal or mechanical warning signals such as sirens, bells, or horns.

3.4.2 Existing Conditions

All contractors performing construction activities are responsible for following ground safety and OSHA regulations and are required to conduct construction activities in a manner that does not pose any risk to

workers or personnel. Industrial hygiene programs address exposure to hazardous materials, use of personal protective equipment, and use and availability of Material Safety Data Sheets (MSDS). Industrial hygiene is the responsibility of contractors, as applicable. Contractor responsibilities are to review potentially hazardous workplaces; to monitor exposure to workplace chemical (e.g., asbestos, lead, hazardous material), physical (e.g., noise propagation), and biological (e.g., infectious waste) agents; to recommend and evaluate controls (e.g., ventilation, respirators) to ensure personnel are properly protected or unexposed; and to ensure a medical surveillance program is in place to perform occupational health physicals for those workers subject to any accidental chemical exposures or engaged in hazardous waste work.

There are several areas that are constrained by QD clear zones at McConnell AFB. These zones are associated with the aircraft parking plan and the munitions storage area. McConnell AFB is aggressively managing its development program to ensure that it meets explosive safety requirements. There are currently no electromagnetic radiation safety zones, antenna look-angles, or security clear zones that affect development on McConnell AFB.

Range sites on McConnell AFB contain various munitions and unexploded ordnance (UXO). Most of the munitions and UXO on the surface have been removed. However, munitions and UXO still can be found below the ground surface. Although most projects would not be within range sites, munitions and UXO could still be encountered within some project areas.

The need for munitions and UXO screening at potential UXO sites is determined on a case-by-case basis. Any projects within potential UXO sites must obtain an environmental restoration waiver from HQ AMC prior to commencement of construction activities. Environmental Flight (22 CES/CEV) staff are coordinated with prior to commencement of construction activities to determine if a waiver is required for proposed work on or near range sites and for safety requirements that would need to be followed during construction.

3.5 Geological Resources

3.5.1 Definition of the Resource

Geological resources consist of the earth's surface and subsurface materials. Within a given physiographic province, these resources typically are described in terms of geology, topography, soils, and, where applicable, natural hazards and paleontology.

Geology is the study of the earth's composition and provides information on the structure and configuration of surface and subsurface features. Such information derives from field analysis based on observations of the surface and borings to identify subsurface composition. Hydrogeology extends the study of the subsurface to water-bearing structures. Hydrogeological information helps in the assessment of groundwater quality and quantity and its movement.

Topography pertains to the general shape and arrangement of a land surface, including its height and the position of its natural and human-made features.

Soils are the unconsolidated materials overlying bedrock or other parent material. Soils typically are described in terms of their complex type, slope, and physical characteristics. Differences among soil types in terms of their structure, elasticity, strength, shrink-swell potential, and erosion potential affect their abilities to support certain applications or uses. In appropriate cases, soil properties must be examined for their compatibility with particular construction activities or types of land use.

Prime farmland is protected under the Farmland Protection Policy Act (FPPA) of 1981 (7 CFR 658). The intent of the FPPA is to minimize the extent to which Federal programs contribute to the unnecessary or irreversible conversion of farmland to nonagricultural uses. The FPPA also ensures that Federal programs are administered in a manner that, to the extent practicable, will be compatible with private, state, and local government programs and policies to protect farmland.

Section 404 of the Clean Water Act (CWA) addresses storm water runoff from construction sites and requires Phase II National Pollutant Discharge Elimination System (NPDES) permits for disturbances between 1 and 5 acres, and Phase I permits for disturbances of more than 5 acres.

3.5.2 Existing Conditions

Topography. McConnell AFB lies in the Central Lowland physiographic province, in the Arkansas River lowlands section of the Osage Plains. The topography in the area can be defined as the Arkansas River valley, which is relatively level; the gently rolling slopes between the river valley and the uplands areas; and the nearly level to sloping uplands. The general topography on the installation consists of a rolling plain, sloping east to west-southwest, on the eastern side of the Arkansas River with elevations ranging between approximately 1,390 feet above mean sea level (amsl) on the eastern side of the installation to approximately 1,290 feet amsl on the southern clear zone at stream level. Much of the natural topography on the installation has been modified and leveled for extension of runways and construction of support buildings (MAFB 2004a).

Geology. The surficial geology of the Arkansas River lowlands consists of Quaternary loess and alluvial river valley deposits. The lower Permian Ninnescah shale comprises the uppermost bedrock which outcrops in the western part of Sedgwick County, but does not lie beneath the installation. The Wellington Formation (lower Permian in age) underlies the Quaternary deposits on the eastern side of Wichita, where it outcrops, and on McConnell AFB, where it is approximately 500 feet thick beneath the installation. This formation is composed of a gray to blue shale interbedded with thin beds of maroon shale, impure limestone, gypsum, and anhydrite (MAFB 2004a).

Soils. The majority of soils originally found on McConnell AFB were the Irwin-Goessel-Rosehill association, found on the north and east sides of the installation, and the Blanket-Farnum-Vanoss association, found on the west and south sides of the installation. The Irwin-Goessel-Rosehill association formed in old alluvial sediments and shale residuum, and is composed of deep and moderately deep, nearly level to sloping, moderately well-drained and well-drained soils having a clayey subsoil. The Blanket-Farnum-Vanoss association formed in old clayey, silty, and loamy sediments and is composed of deep, nearly level to sloping, well-drained soils with a loamy or clayey subsoil. The majority of these soils have been highly disturbed from construction activities to the point that they are no longer mapped separately from Urban Land. Urban Land is defined as area that has been altered or obscured by urban works and structures to the point that identification of the original soils is impossible (USDA 1978). The majority of the soil mapping units currently mapped on the installation are the Urban Land-Farnum complex with 0 to 3 percent slopes, the Urban Land-Irwin complex, with 1 to 3 percent slopes, and the Urban Land-Tabler complex. There are a few additional soil mapping units occurring on the southeastern outskirts of the installation. These include the Elandco Silt Loam, Frequently Flooded; the Elandco Silt Loam, Occasionally Flooded; and the Milan Loam, 1 to 3 percent slopes.

3.6 Water Resources

3.6.1 Definition of the Resource

Water resources include groundwater, surface water, and floodplains. Evaluation of water resources examines the quantity and quality of the resource and its demand for various purposes.

Groundwater. Groundwater consists of subsurface hydrologic resources. It is an essential resource often used for potable water consumption, agricultural irrigation, and industrial applications. Groundwater typically can be described in terms of its depth from the surface, aquifer or well capacity, water quality, surrounding geologic composition, and recharge rate.

Surface Water. Surface water resources consist of lakes, rivers, and streams. Surface water is important for its contributions to the economic, ecological, recreational, and human health of a community or locale. Storm water is an important component of surface water systems because of its potential to introduce sediments and other contaminants that could degrade lakes, rivers, and streams. Proper management of storm water flows, which can be exacerbated by high proportions of impervious surfaces associated with buildings, roads, and parking lots, is important to the management of surface water quality. Storm water systems convey precipitation away from developed sites to appropriate receiving surface waters. Various systems and devices can be designed to control increased storm water volume and velocity and reduce potential adverse effects associated with increased impervious surfaces. Properly designed storm water systems can also provide the benefit of reducing sediments and other contaminants that would otherwise flow directly into surface waters. Failure to size storm water systems appropriately to hold or delay conveyance of the largest predicted precipitation event often leads to downstream flooding and the environmental and economic damages associated with flooding. Higher densities of development, such as those found in urban areas, require greater degrees of storm water management because of the higher proportions of impervious surfaces that occur in urban areas.

The CWA (33 United States Code [U.S.C.] 1251 et seq., as amended) establishes Federal limits, through the NPDES, on the amounts of specific pollutants that are discharged to surface waters to restore and maintain the chemical, physical, and biological integrity of the water. The CWA requires nearly all construction site operators engaged in clearing, grading, and excavating activities that disturb one acre or more to obtain coverage under a NPDES permit for their storm water discharges. Section 404 of the CWA regulates the discharge of fill material into waters of the United States.

Floodplains. Floodplains are areas of low-level ground present along rivers, stream channels, or coastal waters. Such lands might be subject to periodic or infrequent inundation due to rain or melting snow. Risk of flooding typically hinges on local topography, the frequency of precipitation events, and the size of the watershed above the floodplain. Flood potential is evaluated by the Federal Emergency Management Agency (FEMA), which defines the 100-year floodplain. The 100-year floodplain is the area that has a 1 percent chance of inundation by a flood event in a given year. Certain facilities inherently pose too great a risk to be located in either the 100- or 500-year floodplain, such as hospitals, schools, or storage buildings for irreplaceable records. Federal, state, and local regulations often limit floodplain development to passive uses, such as recreational and preservation activities, to reduce the risks to human health and safety.

EO 11988, *Floodplain Management*, requires Federal agencies to determine whether a proposed action would occur within a floodplain. This determination typically involves consultation of appropriate FEMA Flood Insurance Rate Maps, which contain enough general information to determine the relationship of the project area to nearby floodplains. EO 11988 directs Federal agencies to avoid floodplains unless the agency determines that there is no practicable alternative. Where the only

practicable alternative is to site in a floodplain, a specific step-by-step process must be followed to comply with EO 11988. The process is outlined in the FEMA document *Further Advice on EO 11988 Floodplain Management*. As a planning tool, the NEPA process incorporates floodplain management through analysis and public coordination of the EA.

3.6.2 Existing Conditions

Groundwater. The source for groundwater in Sedgwick County is the unconsolidated deposits underlying the Arkansas Valley. Groundwater in the Arkansas Valley has a moderate hardness and, locally, could contain undesirable amounts of salt and iron. McConnell AFB has a shallow hydrogeologic setting with two water bearing zones. The upper aquifer is a shallow unconfined aquifer within unconsolidated Pleistocene deposits and weathered Permian bedrock. The deeper aquifer is within calcareous shales of the Wellington Formation. Groundwater flow follows the local topography toward local surface water drainage features (MAFB 2004a). Groundwater is not used as a source of water on the installation.

Surface Water. Surface water features on McConnell AFB consist of four small ponds and numerous tributaries of the Arkansas River (see **Figure 2-2**). The “main stream,” the most prominent tributary, locally known as McConnell Creek, flows from the northeastern corner of the installation diagonally across to the southern boundary of McConnell AFB. McConnell Creek receives the majority of the drainage on the installation and joins the Arkansas River approximately 3 miles southwest of McConnell AFB. An additional 300 acres in the northwestern corner of the installation drain north to Gypsum Creek, also a tributary to the Arkansas River (MAFB 2004a).

Floodplains. FEMA has not modeled or mapped any floodplains along the streams on McConnell AFB due to the fact that the tributaries on the installation are small in size (MAFB 2004a).

3.7 Biological Resources

3.7.1 Definition of the Resource

Biological resources include wildlife (fauna), vegetation (flora), and the ecosystems in which these resources occur. Specific concerns relating to biological resources consist of declines in species diversity, impacts on threatened and endangered species, and degradation of wetlands and riparian zones.

Vegetation and Wildlife. Sensitive and protected biological resources include federally listed (endangered or threatened), proposed, and candidate species, and designated or proposed critical habitat; species of concern managed under Conservation Agreements or Management Plans; and state-listed species.

Protected and Sensitive Species. The Endangered Species Act (ESA) (16 U.S.C. 1531 et seq.) specifically charges Federal agencies with the responsibility of using their authority to conserve threatened and endangered species. All Federal agencies must ensure an action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a threatened or endangered species or result in the destruction of critical habitat for these species, unless the agency has been granted an exception. The Secretary of the Interior, using the best available scientific data, determines which species are officially threatened or endangered.

State and federally listed species are protected in Kansas as designated by the Kansas Nongame and Endangered Species Conservation Act of 1975. Under provisions of the act, all Federal-listed species also are state-listed. The act places the responsibility for identifying and undertaking appropriate

conservation measures for listed species directly upon the Department of Wildlife and Parks through statutes and regulations. Regulations require the department to issue special action permits for activities that affect species listed as threatened and endangered in Kansas. A Species in Need of Conservation (SINC) is any nongame species deemed to require conservation measures in an attempt to keep the species from becoming a threatened or endangered species. SINC species do not have the level of statutory protection as those listed as threatened or endangered in Kansas.

Wetlands. Wetlands are an important natural system and habitat because of the diverse biologic and hydrologic functions they perform. These functions include water quality improvement, groundwater recharge and discharge, pollution mitigation, nutrient cycling, wildlife habitat, and erosion protection. Wetlands are protected as a subset of the “waters of the United States” under Section 404 of the CWA. The term “waters of the United States” has a broad meaning under the CWA and incorporates deepwater aquatic habitats and special aquatic habitats (including wetlands). The U.S. Army Corps of Engineers (USACE) defines wetlands as “those areas that are inundated or saturated with ground or surface water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas” (33 CFR Part 328).

The USACE is responsible for making jurisdictional determinations and regulating wetlands under Section 404 of the CWA. The USACE also makes jurisdictional determinations under Section 10 of the Rivers and Harbors Act of 1899. The Natural Resources Conservation Service (NRCS) has developed procedures for identifying wetlands for compliance with the Food Security Act of 1985, and the National Wetlands Inventory (NWI) has developed a classification system for identifying wetlands. Through the NWI, the USFWS is the principal Federal agency that provides information to the public on the extent and status of wetlands.

EO 11990, *Protection of Wetlands*, requires that Federal agencies provide leadership and take actions to minimize or avoid the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. Federal agencies are to avoid new construction in wetlands, unless the agency finds there is no practicable alternative to construction in the wetland, and the proposed construction incorporates all possible measures to limit harm to the wetland.

Riparian Areas. Riparian areas are transitional between terrestrial and aquatic ecosystems and are distinguished by gradients in biophysical conditions, ecological processes, and biota. Riparian areas are adjacent to perennial, intermittent, and ephemeral streams, lakes, and estuarine-marine shorelines. They are areas through which surface and subsurface hydrology connects water bodies with their adjacent uplands. They include those portions of terrestrial ecosystems that significantly influence exchanges of energy and matter with aquatic ecosystems. Specifically, they include portions of the channel system and associated features (e.g., gravel bars, islands, and wood debris); a vegetated zone of various successional states influenced by floods, sediment deposition, soil-formation processes, and water availability; and a transitional zone to the adjacent uplands, all underlain by an alluvial aquifer (NRC 2002).

Riparian areas provide stream microclimate modification and shade, bank stabilization and modification of sediment processes, organic litter and wood to aquatic systems, nutrient retention and cycling, wildlife habitat, and food-web support for a wide range of aquatic and terrestrial organisms (NRC 2002). There is no Federal regulatory program that attempts to manage ecologically harmful activities within riparian areas (e.g., livestock grazing, clear-cutting). However, there are Federal programs that apply to certain activities in riparian areas. Section 404 of the CWA applies only to those riparian areas that are included in the jurisdictional definition of wetlands. The ESA has served as authority to regulate the development and use of land in riparian areas that provide essential habitat for a listed threatened or endangered plant or animal species.

Protection of Valuable Natural Resources. The State Conservation Commission (SCC) administers Kansas laws and statutes designed to assist local entities and individuals in conserving natural resources. The agency is governed by five elected commissioners, two exofficio members representing Kansas State University Research and Cooperative Extension, and two appointed members representing the Kansas Department of Agriculture and the U.S. Department of Agriculture (USDA) NRCS. The agency is administered by an executive director appointed by the SCC. The SCC works with the 105 local conservation districts, the 86 organized watershed districts, and state and Federal agencies; and administers programs that improve water quality, reduce soil erosion, conserve water, and reduce flood potential. The SCC has the responsibility to administer the Conservation Districts Law (Kansas Statutes Annotated [K.S.A.] 2-1901 et seq.), the Watershed District Act (K.S.A. 24-1201 et seq.), and other statutes implementing various programs (Kansas SCC 2006).

3.7.2 Existing Conditions

Vegetation. Nearly 90 percent of McConnell AFB is improved or semi-improved. Vegetative cover within the improved areas is typified by mowed lawns and select tree and shrub landscaping, mostly around buildings and along major streets. Semi-improved areas are also largely mowed grass areas with scattered trees, except in the airfield (MAFB 2004a).

Unimproved areas on the installation are disturbed sites with opportunistic herbaceous growth, old agricultural fields that have been lying fallow for many years, or wooded riparian corridors. Except for a small area east of housing, the unimproved land is found in the southern half of the installation. Grass and herbaceous communities are more plentiful than woodlands; however, remnant prairie communities are few and of small size, and most are degraded. Most of the former prairies have been invaded by woody species (due to the suppression of fire) and various grasses and herbs such as tall fescue (*Festuca arundinacea*), Bermuda grass (*Cynodon dactylon*), smooth brome (*Bromus inermis*), Johnson grass (*Sorghum halapense*), sweet clover (*Melilotus* spp.), ragweed (*Ambrosia* spp.), goldenrods (*Solidago* spp.), clotbur (*Xanthium strumarium*), and common sunflower (*Helianthus annuus*). The area of the installation south of 47th Street was outleased in the past for grazing. Although grazing might partially simulate the disturbance of fire, some invasion by woody species and opportunistic herbs still occurs. The area is not currently outleased for grazing but could be in the future (MAFB 2004a).

Large areas of McConnell AFB, primarily the improved and semi-improved areas, are dominated by introduced, cool-season grasses. These areas include the airfield, golf course, surrounding structures in the cantonment area and installation housing, and areas along major roadways. The dominant species include tall fescue (*Festuca arundinacea*), smooth brome (*Bromus inermis*), and Kentucky bluegrass (*Poa pratensis*). Fescue is predominant on lawns in the cantonment area. Tall fescue and some bluestem are associated with the airfield. Fescue and Bermuda grass grows in high visibility areas. Buffalo grass is prevalent in the KANG area. Bermuda grass, a warm-season species, is also prevalent in some areas on the installation (MAFB 2004a).

A nature area and trails have been created on a 5-acre parcel east of installation housing. The nature area consists of native prairie species and is used primarily by the school as an educational resource (MAFB 2004a).

Wildlife. Primary mammal species present on McConnell AFB include white-tailed deer (*Odocoileus virginianus*), eastern cottontail (*Sylvilagus floridanus*), bobcats (*Lynx rufus*), raccoons (*Procyon lotor*), opossums (*Didelphis virginiana*), striped skunks (*Mephitis mephitis*), and coyote (*Canis latrans*). White-tailed deer occur along riparian woodlands, although they usually feed on adjacent properties (MAFB 2004a).

There are several small impoundments at McConnell AFB, although only two contain notable fisheries. They include the KANG pond and one of the three golf course ponds. The latter is the only pond on installation (approximately 1.1 acres in size) actually used for fishing. Primary fish species found in this pond are bluegill (*Lepomis macrochirus*), large-mouth bass (*Micropterus salmoides*), black and white crappie (*Pomoxis nigromaculatus* and *P. annularis*), and channel catfish (*Ictalurus punctatus*) (MAFB 2004a).

Potential species of amphibians occurring on McConnell AFB might include the western chorus frog (*Pseudacris triseriata*), bullfrog (*Rana catesbeiana*), and plains leopard frog (*Rana blairi*). Reptiles such as the black rat snake (*Elaphe obsoleta*), prairie kingsnake (*Lampropeltis calligaster*), and bull snake (*Pituophis melanoleucus*) have been observed on McConnell AFB (MAFB 2004a).

Avian species that might be found on McConnell AFB include Canada goose (*Branta canadensis*), common nighthawk (*Chordeiles minor*), common grackle (*Quiscalus quiscula*), European starling (*Sturnus vulgaris*), brown-headed cowbird (*Molothrus ater*), mourning dove (*Zenaida macroura*), American crow (*Corvus brachyrhynchos*), bobwhite quail (*Colinus virginianus*), ring-neck pheasant (*Phasianus colchicus*), and wild turkey (*Meleagris gallopavo*) (MAFB 2004a).

Protected and Sensitive Species. In 1993 and 1994, the Kansas Natural Heritage Inventory (KSNHI) of the Kansas Biological Survey (KBS) conducted a survey of Federal- and state-listed endangered and threatened species, sensitive species, and outstanding natural areas on McConnell AFB. The KSNHI did not identify any populations of Federal threatened or endangered species on McConnell AFB. The limited amount of habitat for these species makes the likelihood of their presence remote. Five federally listed birds pass through the area: bald eagle (*Haliaeetus leucocephalus*), Eskimo curlew (*Numenius borealis*), least tern (*Sterna albifrons*), piping plover (*Charadrius melodus*), and whooping crane (*Grus americana*), but nesting and foraging habitat for these species is essentially absent on the installation. In addition, the probability that the American burying beetle (*Nicrophorus americanus*), a Federal-listed species, occurs at McConnell AFB is low (MAFB 2004a).

The KSNHI did not identify any populations of state-threatened, state-endangered, or SINC species on McConnell AFB. State-protected species that might occasionally pass through the area include snowy plover (*Charadrius alexandrinus*), peregrine falcon (*Falco peregrinus*), white-faced ibis (*Plegadis chihi*), and eastern spotted skunk (*Spilogale putorius*). A SINC that might occasionally pass through the area is the Henslow's sparrow (*Ammodramus henslowii*) (MAFB 2004a).

Information was gathered by the KSNHI in 1999 for other rare plants, natural communities, and the biota of the installation. No state-listed plants were discovered and no natural community occurrences were mapped. The few areas supporting natural communities were either too small or of insufficient quality to warrant mapping (MAFB 2004a).

Wetlands. An on-site investigation to delineate potential jurisdictional wetlands was performed in 2000 by HDR Engineering, Inc. Potential wetland areas identified on installation property totaled 14.8 acres, of which 3.04 acres are forested wetlands and 11.76 acres are palustrine emergent wetlands (see **Figure 2-2**). In addition, 6.33 miles of McConnell Creek, streams, and ditches within the installation exhibited wetland characteristics. According to the Kansas State Regulatory Office, Kansas City District Corps of Engineers, most of the ditches are not considered jurisdictional wetlands. Most ditches and grassed waterways on the installation are vegetated and without definable beds or banks. Waterways with definable beds and banks are generally considered jurisdictional and are regulated by the Kansas City District Corps of Engineers (MAFB 2001). A current jurisdictional wetlands determination would be necessary prior to conducting activities that could affect wetlands or other waters of the United States.

Species most commonly associated with wooded wetlands (forested and scrub-shrub) are cottonwood and willows. Common species in emergent wetland areas are fox sedge (*Carex vulpinoidea*), spike rush (*Eleocharis* sp.), yellow nut sedge (*Cyperus esculentus*), soft-stemmed bulrush (*Scirpus validus*), and broad-leaf cattail (*Typha latifolia*). The largest potential wetlands are in the southeastern portion of the installation, adjacent to the intermittent streams. All four ponds are greater than 1 acre; three are found in the vicinity of the golf course and the fourth adjacent to the portion of the installation occupied by KANG (MAFB 2004a).

One wetland mitigation site currently exists in the northwestern corner of the installation by the KANG storm water basin. A second wetland mitigation site to compensate for an installation project impacting wetland areas is on the north side of the installation (MAFB 2004a).

Riparian Areas. The majority of the woodland is centered along streams at the south end of the installation. The riparian woodlands extend along the stream from the golf course south to the installation boundary, and along the streams in the clear zone south of 47th Street. Other notable wooded areas include a small secondary growth woodland east of housing that is used by the local school as an “outdoor laboratory,” and a small woodlot southwest of the airfield (MAFB 2004a).

3.8 Cultural Resources

3.8.1 Definition of the Resource

“Cultural resources” is an umbrella term for many heritage-related resources. The National Historic Preservation Act (NHPA) defines cultural resources as prehistoric and historic sites, structures, districts, or any other physical evidence of human activity considered important to a culture, a subculture, or a community for scientific, traditional, religious, or any other reason. Depending on the condition and historic use, such resources might provide insight into the cultural practices of previous civilizations or they might retain cultural and religious significance to modern groups.

Several Federal laws and regulations govern protection of cultural resources, including the NHPA (1966), the Archaeological and Historic Preservation Act (1974), the American Indian Religious Freedom Act (1978), the Archaeological Resources Protection Act (1979), and the Native American Graves Protection and Repatriation Act (NAGPRA) (1990). NAGPRA requires consultation with interested Native American tribes for the disposition of human remains and artifacts recovered from archaeological sites.

Typically, cultural resources are subdivided into archaeological resources (prehistoric or historic sites where human activity has left physical evidence of that activity but no structures remain standing), or architectural resources (buildings or other structures or groups of structures, or designed landscapes that are of historic or aesthetic significance).

Archaeological resources comprise areas where human activity has measurably altered the earth or deposits of physical remains are found (e.g., projectile points and bottles).

Architectural resources include standing buildings, bridges, dams, and other structures of historic or aesthetic significance. Generally, architectural resources must be more than 50 years old to be considered for the National Register of Historic Places (NRHP). More recent structures, such as Cold War-era resources, might warrant protection if they are of exceptional importance or if they have the potential to gain significance in the future.

Traditional cultural properties or sacred sites can include archaeological resources, structures, neighborhoods, prominent topographic features, habitat, plants, animals, and minerals that Native Americans or other groups consider essential for the preservation of traditional culture.

The EA process and the consultation process prescribed in Section 106 of the NHPA require an assessment of the potential impact of an undertaking on historic properties that are within the proposed project's Area of Potential Effect (APE), which is defined as the geographic area(s) "within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist." Under Section 110 of the NHPA, Federal agencies are required to locate and inventory all resources under their purview that are recommended as eligible for inclusion in the NRHP on owned, leased, or managed property. In accordance with EO 12372, *Intergovernmental Review of Federal Programs*, determinations regarding the potential effects of an undertaking on historic properties are presented to the SHPO. The APE of the Proposed Action encompasses the entire area of McConnell AFB.

3.8.2 Existing Conditions

Archaeological Resources. Based on information provided in the McConnell AFB Integrated Cultural Resources Management Plan (ICRMP) (MAFB 2004b), all of the unpaved acreage within McConnell AFB has been subjected to archaeological survey or designated as extensively disturbed by previous construction or Environmental Restoration Program activities. No prehistoric archaeological sites have been identified on McConnell AFB. The installationwide survey identified eight historic sites, none of which are considered to be eligible for the NRHP (De Vore and Ruhl 1995). Most of these sites are recent 20th century in date. Four of the sites are the remains of trash dumps, and three others are the remains of commercial establishments in operation during the 1960s and 1970s. Site 14SG106 might date from the 19th century; however, demolition carried out after the USAF acquired the land has severely impacted its integrity. There is too little information potential associated with any of these sites to warrant NRHP eligibility. The SHPO has concurred with these findings (MAFB 2004b). It should be noted that although no further archaeological survey of the installation is required, this does not mean that the inadvertent discovery of archaeological sites is impossible. Should archaeological material be found, installation personnel will follow the procedures outlined below and found in Sections 5.2.1 and 5.2.2 of the ICRMP (MAFB 2004b).

McConnell AFB contacted the Wichita Tribe and the Osage Tribe of Oklahoma to solicit their comments concerning cultural resources on McConnell AFB on June 8, 1995. McConnell AFB provided copies of the installationwide archaeological survey report to both groups. Neither group expressed concerns about resources on the installation.

Architectural Resources. Based on the information provided in the ICRMP (MAFB 2004b), all pre-1947 and 1951–1955 facilities on the installation have been inventoried and evaluated. Five buildings (9, 1106, 1107, 1218, and 1219) have been determined eligible for listing in the NRHP based on USAF review and consideration of the various studies conducted to date (including the appropriate use of the NRHP criteria for evaluation), correspondence between the USAF and appropriate cultural resources agencies (e.g., the Kansas SHPO), and the types of preservation considerations identified at McConnell AFB (MAFB 2004b).

The results of the National Park Service survey (De Vore and Ruhl 1995) of buildings at McConnell AFB suggested that historic buildings on the installation could possibly represent a potential historic district eligible under NRHP criteria A and C. However, their spatial separation suggests that a Multiple Property Group designation of aviation-related resources in the Wichita area for Buildings 9, 1218, and 1219; and the Wichita Municipal Airport Administration Building (not within the boundary of McConnell AFB, and

currently owned by the city of Wichita) might be more appropriate. All the buildings are linked by their historical association with the city's early leadership in the development of the airline industry, commercial airplane manufacturing, commercial and military aviation activities, and, in some cases, the use of some similar architectural features.

Buildings constructed after 1955 at McConnell AFB have not been evaluated for NRHP eligibility, either under criteria A through D or under criterion consideration G (resources less than 50 years in age) for association with Cold War-era events.

Traditional Cultural Properties. As noted in the discussion of archaeological resources, no sites or areas important to federally recognized Tribes have yet been identified at McConnell AFB. Based on the absence of pre-contact period or early post-contact period archaeological sites within the boundaries of the installation, it would appear that the area was not used intensively by Native Americans (or that small sites that might have been present were destroyed by construction or use of the installation). The potential for culturally significant resources appears to be low.

3.9 Socioeconomics and Environmental Justice

3.9.1 Definition of the Resource

Socioeconomics. Socioeconomics is defined as the basic attributes and resources associated with the human environment, particularly characteristics of population and economic activity. Regional birth and death rates and immigration and emigration affect population levels. Economic activity typically encompasses employment, personal income, and industrial or commercial growth. Changes in these fundamental socioeconomic indicators are typically accompanied by changes in other components, such as housing availability and the provision of public services. Socioeconomic data at county, state, and national levels permit characterization of baseline conditions in the context of regional, state, and national trends.

Data in three areas provide key insights into socioeconomic conditions that might be affected by a proposed action. Data on employment identify gross numbers of employees, employment by industry or trade, and unemployment trends. Data on personal income in a region can be used to compare the "before" and "after" effects of any jobs created or lost as a result of a proposed action. Data on industrial or commercial growth or growth in other sectors provide baseline and trend line information about the economic health of a region.

In appropriate cases, data on an installation's expenditures in the regional economy help to identify the relative importance of an installation in terms of its purchasing power and jobs base.

Demographics identify the population levels and changes to population levels of a region. Demographics data might also be obtained to identify, as appropriate to evaluation of a proposed action, a region's characteristics in terms of race, ethnicity, poverty status, educational attainment level, and other broad indicators.

Socioeconomic data shown in this chapter are presented at metropolitan, county, and state levels to characterize baseline socioeconomic conditions in the context of regional and state trends. Data have been collected from previously published documents issued by Federal, state, and local agencies; and from state and national databases (e.g., U.S. Bureau of Economic Analysis' Regional Economic Information System). Only census tracks near the Proposed Action were analyzed.

Environmental Justice. There are no Federal regulations on socioeconomics, but there is one EO that pertains to environmental justice issues. This EO is included in the environmental justice section because it relates to various socioeconomic groups and the health effects that could be imposed on them. On February 11, 1994, President Clinton issued EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. This EO requires that Federal agencies' actions substantially affecting human health or the environment do not exclude persons, deny persons benefits, or subject persons to discrimination because of their race, color, or national origin. The EO was created to ensure the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no groups of people, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of Federal, state, tribal, and local programs and policies. Consideration of environmental justice concerns includes race, ethnicity, and the poverty status of populations in the vicinity of a proposed action. Such information aids in evaluating whether a proposed action would render vulnerable any of the groups targeted for protection in the EO.

3.9.2 Existing Conditions

McConnell AFB is 6 miles southeast of downtown Wichita, Kansas, in unincorporated Sedgwick County. Wichita is the largest city in Kansas with an estimated population of 354,617 in 2003 (U.S. Census Bureau 2000a). Between 1990 and 2000, Sedgwick County experienced a 12.2 percent population increase while Wichita had an 11.5 percent population increase during the same time period (U.S. Census Bureau 2000a). For this Proposed Action, the socioeconomic baseline is presented using three levels of comparison: a defined Region of Influence (ROI), the Wichita Metropolitan Statistical Area (MSA), and the state of Kansas. The ROI was defined as the census tract containing McConnell AFB and the 10 tracts directly adjacent to the installation that could be affected by the Proposed Action. The ROI is contained entirely within Sedgwick County. The Wichita MSA includes Butler, Harvey, and Sedgwick counties, of which Sedgwick County is the largest (MAFB 2005a).

Employment Characteristics. Wichita is the regional economic hub of Kansas and northern Oklahoma, providing financial, medical, retail, and business services to more than 1 million people within a 100-mile radius of the city (MAFB 2005a). Wichita has specialized in manufacturing and aviation for years with the Boeing Company, Cessna Aircraft Company, and Raytheon Aircraft companies in the MSA.

According to McConnell AFB's General Plan, there are 2,907 active-duty personnel assigned to the installation (MAFB 2005a). In addition, the installation is supported by 449 civilians and provides service to 7,223 retirees, along with approximately 4,529 dependents. McConnell AFB continues to have a positive impact on the MSA. In 2005, McConnell AFB had approximately \$104.4 million in expenditures and a combined payroll of \$345.8 million. It was estimated that in fiscal year (FY) 2005, military and civilian employees at McConnell AFB spent approximately \$100.8 million of their total income in the local area (22 ARW/FMA 2005). Combined expenditures, annual expenses, and the estimated value of indirect jobs from McConnell AFB provided a \$410.3 million economic impact as of 2005 (22 ARW/FMA 2005).

As of April 2006, the MSA had a 4.7 percent unemployment rate which is nearly identical to Kansas's unemployment rate of 4.6 percent (BLS 2006). **Table 3-6** shows employment types by industry; the largest employment type in the ROI and MSA is manufacturing at 27 percent and 23.7 percent, respectively. As expected, there is a higher percentage of persons employed in the Armed Forces in the ROI. The second largest employment type by industry in the ROI and MSA is educational, health, and social services at 15.5 percent and 22.9 percent, respectively.

Table 3-6. Overview of Employment by Industry

Employment by Industry	ROI ^a	MSA ^b	State of Kansas
Percent of Employed Persons in Armed Forces	5.1%	0.4%	0.7%
Industry of Civilian Labor Force			
Agriculture, forestry, fishing and hunting, and mining	0.8%	2.2%	3.8%
Construction	6.9%	6.6%	6.5%
Manufacturing	27.0%	23.7%	15.0%
Wholesale trade	2.5%	2.6%	3.3%
Retail trade	12.1%	10.7%	11.5%
Transportation and warehousing, and utilities	3.6%	4.1%	5.2%
Information	1.9%	2.0%	3.3%
Finance, insurance, real estate, and rental and leasing	5.2%	4.9%	6.1%
Professional, scientific, management, administrative, and waste management services	6.1%	5.3%	7.2%
Educational, health, and social services	15.5%	22.9%	21.9%
Arts, entertainment, recreation, accommodation, and food services	9.3%	6.5%	7.0%
Other services (except public administration)	5.0%	5.1%	4.6%
Public administration	3.9%	3.4%	4.4%

Source: U.S. Census Bureau 2000b

Notes:

^a The ROI consists of the U.S. Census Tract encompassing McConnell AFB (Tract 66) and the 10 tracts surrounding the installation (Tracts 58, 59, 61, 64, 65, 67, 70, 72.02, 100.03, and 100.04).

^b The MSA consists of Butler, Harvey, and Sedgwick counties.

Environmental Justice. Race, ethnicity, and the poverty status of people within the ROI, MSA, and Kansas were characterized to establish a baseline for environmental justice analysis. To establish a baseline for environmental justice effects, income, poverty, and race were examined at the census tract level and compared to the state and MSA averages. Census tracts having disproportionately low-income or high-poverty levels or percentages of minorities are discussed in more detail to determine if environmental justice impacts could occur.

Demographic data of the 11 census tracts identified as the ROI (Tracts 58, 59, 61, 64, 65, 66, 67, 70, 72.02, 100.03, and 100.04) were compared to the MSA and the state of Kansas in **Table 3-7** (see **Figure 3-1** for census tract locations). Examination of **Table 3-7** shows that the ROI has a higher percentage of African American residents (9.8 percent) than both the MSA and Kansas (4.0 percent and 5.7 percent respectively) and a higher percentage of Asian residents (7.6 percent) than the MSA or Kansas (1.4 percent and 1.7 percent respectively). However residents in the ROI have a higher Median Household Income (\$42,275) than Kansas (\$40,264). As shown in **Table 3-8**, Tracts 66 (McConnell AFB) and 70

have the highest percentages of African Americans (17.7 percent and 20.4 percent respectively) of any of the tracts in the ROI, while Tract 65 has a 21.5 percent Asian population. When compared to the MSA and Kansas, all the census tracts in the ROI, except Tract 100.04, have a higher percentage of African Americans. Tracts 58, 59, 61, 64, 65, 66, 67, and 70 have an equal or higher percentage of individuals below poverty level than Kansas.

Table 3-7. Race and Poverty Characteristics

	ROI ^a	MSA ^b	Kansas
Total Population	44,096	545,040	2,688,418
Percent White	72.1%	88.4%	86.1%
Percent Black or African American	9.8%	4.0%	5.7%
Percent American Indian, Eskimo, or Aleut	1.4%	0.8%	0.9%
Percent Asian	7.6%	1.4%	1.7%
Percent Native Hawaiian and Other Pacific Islander	0.1%	0.0%	0.0%
Percent reporting some other race	4.9%	3.0%	3.4%
Percent reporting 2 or more races	4.0%	2.2%	2.1%
Percent below poverty	9.9%	5.5%	6.7%
Median Household Income	\$42,275	\$42,955	\$40,624

Source: U.S. Bureau of Census 2000b

Notes:

^a The percent of persons below poverty level in the ROI is the average of the 11 census tracts evaluated.

^b The MSA consist of Butler, Harvey, and Sedgwick counties.

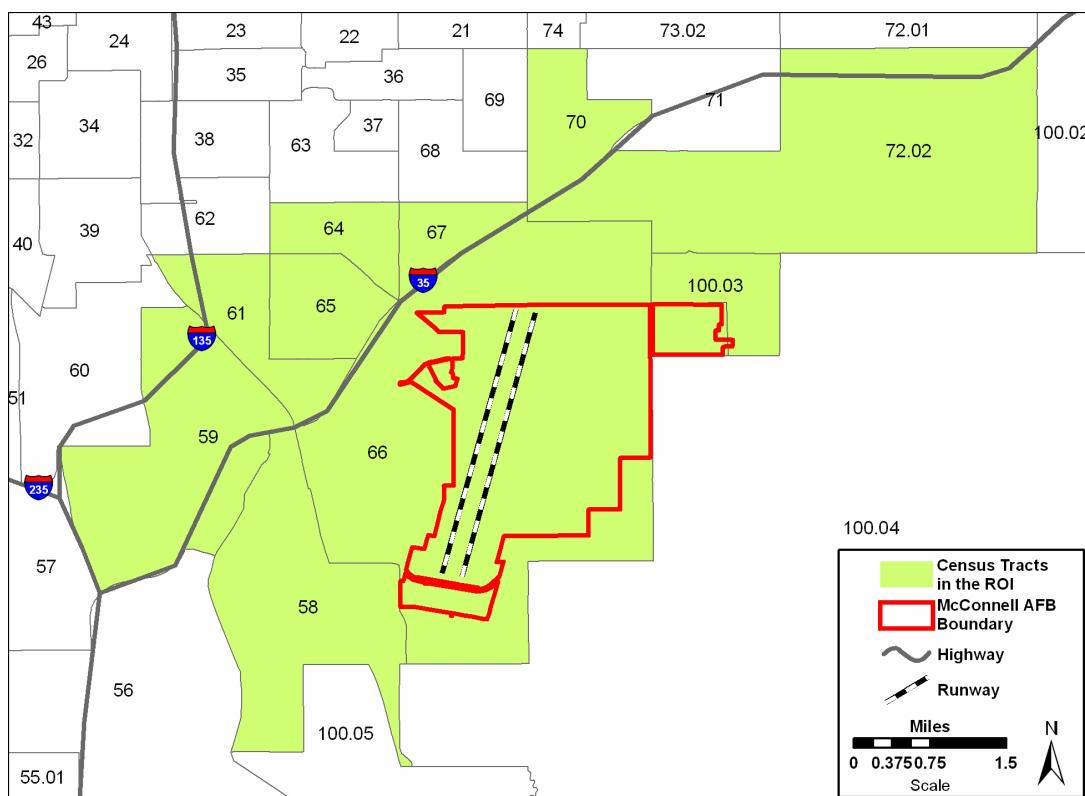


Figure 3-1. Area Map Showing Census Tracts

Table 3-8. Race and Economic Characteristics of Census Tract Residents

	Tract 58	Tract 59	Tract 61	Tract 64	Tract 65	Tract 66	Tract 67	Tract 70	Tract 72.02	Tract 100.03	Tract 100.04
Total Population	4,495	4,817	3,399	1,728	4,272	3,674	2,278	3,797	10,237	2,134	3,265
Percent White	70.6%	80.2%	74.3%	81.8%	41.3%	70.3%	71.9%	65.1%	74.3%	69.8%	93.8%
Percent Black or African American	7.1%	7.5%	8.9%	6.8%	6.7%	17.7%	11.2%	20.4%	9.3%	11.5%	1.4%
Percent American Indian Alaska Native	2.2%	1.8%	2.1%	1.5%	2.2%	1%	1.9%	1.2%	0.6%	0.7%	0.6%
Percent Asian	10.8%	2.7%	3.7%	4.8%	21.5%	2.7%	6.8%	4.6%	11.4%	12.7%	1.7%
Percent Native Hawaiian and Other Pacific Islander	0.1%	0.1%	0.1%	0%	0.4%	0.3%	0%	0.1%	0.1%	0%	0%
Percent reporting some other race	5.9%	3.3%	6.5%	2%	22.3%	3.7%	3.6%	3.4%	1.3%	1.7%	1.2%
Percent reporting 2 or more races	4.7%	4.4%	4.4%	3.1%	5.7%	4.3%	4.6%	5.2%	3%	3.5%	1.4%
Percent below poverty	14.3%	13.6%	7.7%	6.7%	24.4%	6.8%	14.5%	17.1%	1.9%	0.0%	2.1%
Per Capita Income	\$14,194	\$15,919	\$16,144	\$20,320	\$10,103	\$13,091	\$17,719	\$16,352	\$24,352	\$21,245	\$24,904
Median Household Income	\$38,601	\$42,656	\$36,404	\$42,056	\$25,647	\$36,412	\$30,099	\$30,064	\$51,368	\$65,843	\$65,878

3.10 Infrastructure

3.10.1 Definition of the Resource

Infrastructure consists of the systems and physical structures that enable a population in a specified area to function. Infrastructure is wholly human-made, with a high correlation between the type and extent of infrastructure and the degree to which an area is characterized as “urban” or developed. The availability of infrastructure and its capacity to support growth are generally regarded as essential to the economic growth of an area. The infrastructure components to be discussed in this section include the transportation network, electricity, natural gas, communications, water supply, sanitary systems and wastewater, and solid waste. All information on McConnell AFB’s infrastructure was taken from the General Plan (MAFB 2005a).

The availability of landfills to support a population’s residential, commercial, and industrial needs is integral in evaluating municipal solid waste (MSW). Alternative means of waste disposal might involve waste-to-energy programs or incineration. In some localities, landfills are designed specifically for, and are limited to, disposal of construction and demolition debris. Recycling programs for various waste categories (e.g., glass, metals, and papers) reduce reliance on landfills for disposal.

3.10.2 Existing Conditions

Airfield. Airfield conditions at McConnell AFB have been rated adequate to support mission activities. The western portion of the runway was overhauled in 1991 and the primary runway is in very good to excellent condition. The taxiways at McConnell AFB are in very good condition, although Taxiway Charlie (west) is abandoned and would require significant repairs before use.

Airfield lighting is considered to be in fair to poor condition at McConnell AFB. The biggest concern for airfield lighting is that the lighting along the runway and taxiway are not correctly located. A series of phased projects is underway to bring lighting along the airfield into compliance with USAF and AMC standards. The phased project includes installation of new switchgear, runway and taxiway edge lighting, manholes, and underground utility lines (MAFB 2005a).

Storm Drainage System. Both storm water runoff and other surface waters are managed by a series of underground pipes, culverts, and natural channels. The main installation area and flight line are contained within a single basin that drains into McConnell Creek. The MFH area in the northeastern corner of the installation has an enclosed drainage system, but drains to the base and into an open channel. Storm water at McConnell AFB drains south and helps form McConnell Creek, which is a tributary of the Arkansas River. There are no on-installation detention/retention basins on the main installation which has given the storm drainage system a lower assessment (MAFB 2005a).

Communications. The communications system at McConnell AFB provides support to the 22 ARW. The communications systems consist of the information transfer system, telephone switching system, data communications, long-haul communications, radio, and meteorological/navigational systems (MAFB 2005a). Services and infrastructure are available to support a wide range of communications requirements at McConnell AFB.

Electrical. Electricity at McConnell AFB is purchased from Westar Energy. The main service feeds 12.47 kilovolts through two parallel circuits (MAFB 2005a). The two circuits feed two switchgears that provide electricity through above- and below ground distribution. One switch feeds underground electricity to the airfield and water plant while another switch supplies aboveground electricity to housing

areas and the remaining portions of the installation. New construction on-installation is being serviced by underground electrical lines.

The current electrical system at McConnell AFB is operating at 60–70 percent of capacity. The electrical system is adequate at McConnell AFB with planned improvements to switchgear, streetlights, manholes, and underground utility lines.

Heating and Cooling. Buildings on-installation have standalone heating and cooling systems, with some of the heating systems having dual-fuel capable boilers. McConnell AFB has 7,055 tons of air conditioning and 2,587 horsepower of boiler capabilities (MAFB 2005a). Continual repair and modifications of existing buildings along with the addition of new structures has helped keep the heating, ventilation, and air conditioning (HVAC) system up-to-date and adequate.

Liquid Fuel. McConnell AFB uses JP-8 (jet fuel), No. 2 light fuel oil, unleaded gasoline, diesel fuel, deicing fluid (propylene glycol), MOGAS, and propane. The JP-8 fuel is piped onto the installation through a commercial pipeline on the northern side of McConnell AFB. Two aboveground storage tanks (ASTs) have the capacity to store 1.15 million gallons of JP-8 fuel. At the northern end of the apron are two hydrants with 14 outlets that have two ASTs with a capacity of 420,000 gallons each (MAFB 2005a). McConnell AFB's liquid fuel system is rated as adequate.

Natural Gas. The primary source of heat at McConnell AFB is natural gas that is provided by Seminole Energy Services through a 3-inch high-pressure line. The distribution system was upgraded in the 1990s and approximately 97 percent of the system is constructed with polyvinyl chloride (PVC) piping. McConnell AFB has made advances in replacing old gas meters that are susceptible to leaks. Service has been well-maintained with no reported interruptions of service from the supplier. The natural gas system at McConnell AFB is rated as better than adequate (MAFB 2005a).

Sanitary Sewer. The sanitary sewer system at McConnell AFB consists of collection only; wastewater is pumped to the city of Wichita for treatment and disposal. The on-installation system consists almost entirely of gravity mains. Construction of a new main lift station began in 2003 and was finished in 2006. The main lift station was replaced because of leakage of wet walls and outdated pumps (MAFB 2005a). There are five other small lift stations on-installation that are in good condition.

The sewer lines on the main installation are mostly PVC. The southeastern corner of the installation is not part of the main sewer system. Instead this area has a number of septic and holding tanks. The overall condition of the sanitary sewer system is adequate.

Transportation Network. The roadway network on McConnell AFB is 31 miles of public roads and 7.5 miles of administrative roads not used by the general public. The off-installation transportation network at McConnell AFB consists of four local arterial roadways that serve the installation. These roadways include South Rock Road, Arnold Boulevard, 31st Street, and George Washington Boulevard. Interstate 35 provides highway access to McConnell AFB operating north to south. The major roads on-installation include Salina Drive, Kansas Street, and Manhattan Street; all other roads are collector roads that feed into these primary roads (MAFB 2005a).

Roadways and parking lots at McConnell AFB are considered to be in very good condition and efficiently maintained (MAFB 2005a). Hot summer weather has caused some “blowups” whereby excessive heat causes the pavement to expand out. Despite the good rating of roadway and parking lot conditions at McConnell AFB, continual efforts are undertaken to make improvements and maintain adequate conditions of the transportation network.

Water. Potable water for McConnell AFB is purchased from the city of Wichita, which draws its water from two main sources: the Equus Beds and Cheney Reservoir. Of the potable water available to McConnell AFB, Wichita draws approximately 60 percent of its water from the Equus Beds, which contains an underlying aquifer that is about 1 million acres in size. The 933-square-mile Cheney Reservoir is west of the city and provides the remaining 40 percent of water for Wichita (MAFB 2005a).

Water is supplied to the installation at two connection points, one to the west along Salina Drive and another from the north at the intersection of Salina Drive and Rock Road. The initial water distribution system was built in the 1950s and has undergone considerable upgrades to meet supply demands. The majority of mains were replaced in 1988 with C900 PVC pipes. The current distribution system has more than 82 miles of mains and approximately 1.5 miles of asbestos cement water mains (MAFB 2005a). Water is pumped through the installation by three pumps, each with a capacity of 1,000 gallons per minute.

There are no wells on the installation, but there is on-installation water storage that consists of a 1-million gallon ground storage tank and a 1-million gallon storage tower (MAFB 2005a). The current water capacity at McConnell AFB is at 95 percent. During summer, supply demands can diminish water pressure and volume. The condition of the water supply system is better than adequate with planned improvements to remove asbestos cement pipes and circulation.

Solid Waste. Solid waste is collected by Waste Disposal LLC, and deposited at one of two transfer stations (Miles 2006). Annual tonnage at McConnell AFB has averaged approximately 1,870 tons over the past 5 years. There is no annual limit to the amount of solid waste handled by Waste Disposal LLC (Miles 2006). McConnell AFB participates in voluntary recycling efforts by placing mobile recycling units around the installation. Items that can be recycled at these units include scrap wood, compost, paper, newspaper, magazines, phone books, CDs, printer cartridges, cardboard, tin, aluminum, plastic, glass, and wooden pallets.

3.11 Hazardous Materials and Waste

3.11.1 Definition of the Resource

AFPD 32-70, *Environmental Quality*, establishes the policy that the USAF is committed to

- Cleaning up environmental damage resulting from its past activities
- Meeting all environmental standards applicable to its present operations
- Planning its future activities to minimize environmental impacts
- Managing responsibly the irreplaceable natural and cultural resources it holds in public trust
- Eliminating pollution from its activities wherever possible.

Hazardous material is defined as any substance with physical properties of ignitability, corrosivity, reactivity, or toxicity that could cause an increase in mortality, serious irreversible illness, or incapacitating reversible illness; or that might pose a substantial threat to human health or the environment. Hazardous waste is defined as any solid, liquid, contained gaseous, or semisolid waste; or any combination of wastes that poses a substantial present or potential hazard to human health or the environment.

Evaluation of hazardous materials and waste focuses on USTs and ASTs and the storage, transport, and use of pesticides and herbicides; fuels; and petroleum, oil, and lubricants (POL). Evaluation might also

extend to generation, storage, transportation, and disposal of hazardous waste when such activity occurs at or near the project site of a proposed action. In addition to being a threat to humans, the improper release of hazardous materials and wastes can threaten the health and well-being of wildlife species, botanical habitats, soil systems, and water resources. In the event of a release of hazardous materials or wastes, the extent of contamination varies based on type of soil, topography, and water resources.

Special hazards are those substances that might pose a risk to human health, but are not regulated as contaminants under the hazardous waste statutes. Included in this category are asbestos-containing material (ACM), radon, lead-based paint (LBP), polychlorinated biphenyls, and UXO. The presence of special hazards or controls over them might affect, or be affected by, a proposed action. Information on special hazards, describing their locations, quantities, and condition, assists in determining the significance of a proposed action.

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), and the Toxic Substances Control Act (TSCA) define hazardous materials. The Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act (RCRA), which was further amended by the Hazardous and Solid Waste Amendment (HSWA), defines hazardous wastes. In general, both hazardous materials and wastes include substances that, because of their quantity; concentration; or physical, chemical, or infectious characteristics, could present substantial danger to public health or welfare or the environment when released or otherwise improperly managed.

Through its ERP, DOD evaluates and cleans up sites where hazardous wastes have been spilled or released to the environment. The ERP provides a uniform, thorough methodology to evaluate past disposal sites, to control the migration of contaminants, to minimize potential hazards to human health and the environment, and to clean up contamination. Description of ERP activities provides a useful gauge of the condition of soils, water resources, and other resources that might be affected by contaminants. It also aids in identification of properties and their usefulness for given purposes (e.g., activities dependent on groundwater usage might be foreclosed where a groundwater contaminant plume remains to complete remediation).

3.11.2 Existing Conditions

Hazardous Materials. AFI 32-7086, *Hazardous Materials Management*, establishes procedures and standards that govern management of hazardous materials throughout the USAF. It applies to all USAF personnel who authorize, procure, issue, use, or dispose of hazardous materials; and to those who manage, monitor, or track any of those activities. To reduce hazardous and toxic material procurements at McConnell AFB, materials are approved and tracked by the hazardous materials pharmacy (HAZMART) which serves as a centralized distribution point in accordance with AFI 32-7086. The HAZMART is in Building 1090 (MAFB 2005a). The majority of hazardous materials procured are for aircraft operations.

Hazardous Waste. The 22 CES/CEV maintains a Hazardous Waste Management Plan as directed by AFI 32-7042, *Solid and Hazardous Waste Compliance*. This plan prescribes the roles and responsibilities of all members of McConnell AFB and its tenants, including AFRC and KANG, with respect to the waste stream inventory, waste analysis plan, hazardous waste management procedures, training, emergency response, and pollution prevention. The plan establishes the procedures to comply with applicable Federal, state, and local standards for hazardous waste management. The plan outlines procedures for transport, storage, and disposal.

Hazardous wastes generated at McConnell AFB include flammable solvents, contaminated fuels, paint/coating, stripping chemicals, toxic metals, waste paint-related materials, waste generated under the

Comprehensive Universal Waste Program, and other miscellaneous wastes. The overall management of hazardous waste is the responsibility of the 22 CES/CEV. McConnell AFB generates hazardous wastes primarily as a result of aircraft maintenance, vehicle maintenance, and tenant and contract activities (MAFB 2005a).

McConnell AFB produces materials containing approximately 30 tons of hazardous waste annually and is considered a large-quantity hazardous waste generator. There are 65 satellite accumulation points on installation and one 90-day accumulation site. A contracted waste transporter picks up the waste containers from the 90-day accumulation sites and transports them to an off-installation licensed Treatment, Storage, and Disposal Facility (MAFB 2005a).

Pollution Prevention. AFI 32-7080, *Pollution Prevention Program*, implements the regulatory mandates in the Emergency Planning and Community Right-to-Know Act; Pollution Prevention Act of 1990; EO 12873, *Federal Acquisition, Recycling, and Waste Prevention*; and EO 12902, *Energy Efficiency and Water Conservation at Federal Facilities*. In part, these mandates require the USAF to procure, to the greatest extent practical, recycled or energy-efficient goods for administrative and construction activities. AFI 32-7080 prescribes the establishment of Pollution Prevention Management Plans. The 22 CES/CEV fulfills this requirement with the following plans:

- Integrated Solid Waste Management Plan, 2005
- Storm Water Pollution Prevention Plan (SWPPP), 2004
- Hazardous Waste Management Plan, 2005
- Management Action Plan, 2005
- Hazardous Material Management Plan, 2006
- Pollution Prevention Management Action Plan, 2002.

These plans ensure that McConnell AFB maintains a waste-reduction program and meets the requirements of the CWA; the NPDES permit program; and Federal, state, and local requirements for spill prevention control and countermeasures.

Radon. Radon is a naturally occurring radioactive gas found in the soil and rocks; it comes from the natural breakdown or decay of uranium. Radon has the tendency to accumulate in enclosed spaces that are usually below ground and poorly ventilated (e.g., basements). Radon is an odorless, colorless gas that has been determined to increase the risk of developing lung cancer.

USEPA's recommended mitigation "action level" is 4.0 picocuries per liter (pCi/L). The average (mean) radon level in U.S. homes is approximately 1.3 pCi/L, or three times the outdoor level of 0.4 pCi/L. Because there is no known safe level of radon exposure, USEPA recommends that Americans consider fixing their home for radon levels between 2 pCi/L and 4 pCi/L. USAF policy is to monitor and mitigate elevated levels of radon to acceptable levels and conduct follow-on sampling to validate the effectiveness of the mitigation.

In 1988, a radon gas survey was conducted and resulted in 35 locations having 3.1 pCi/L or less. According to the USEPA Map of Radon Zones, McConnell AFB is in an area with moderate decay of radon, measuring between 2 and 4 pCi/L.

Asbestos-Containing Materials. AFI 32-1052, *Facilities Asbestos Management*, provides the direction for asbestos management at USAF installations. This instruction incorporates by reference applicable

requirements of 29 CFR Part 669 et seq., 29 CFR 1910.1025, 29 CFR 1926.58, 40 CFR 61.3.80, Section 112 of the CAA, and other applicable AFIs and DOD Directives. AFI 32-1052 requires installations to develop an asbestos management plan for the purpose of maintaining a permanent record of the status and condition of ACM in installation facilities, as well as documenting asbestos management efforts. In addition, the instruction requires installations to develop an asbestos operating plan detailing how the installation accomplishes asbestos-related projects. Asbestos is regulated by USEPA with the authority promulgated under OSHA, 29 U.S.C. 669, et seq. Section 112 of the CAA regulates emissions of asbestos fibers to ambient air. USEPA policy is to leave asbestos in place if disturbance or removal could pose a health threat.

Building materials in older buildings are assumed to contain asbestos. It exists in a variety of forms and can be found in floor tiles, floor tile mastic, roofing materials, joint compound used between two pieces of wallboard, some wallboard thermal system insulation, and boiler gaskets. If asbestos is disturbed, fibers can become friable. Common sense measures, such as avoiding damage to walls, will keep the fibers from becoming airborne and hazardous. ACM is removed in conjunction with other building renovation and alteration projects.

Asbestos at McConnell AFB is managed in accordance with the *Asbestos Management and Operating Plan* that was updated in November 2003 (22 CES/CEV 2003). This plan specifies procedures for the testing, removal, encapsulation, enclosure, and repair activities associated with ACM-abatement projects, as well as addresses organizational roles and responsibilities. In addition, it is designed to protect personnel who live and work on McConnell AFB from exposure to airborne asbestos fibers as well as to ensure the installation remains in compliance with Federal, state, and local regulations pertaining to asbestos. The 22 CES/CEV maintains ACM building surveys.

Lead-Based Paint. The Residential Lead-Based Paint Hazard Reduction Act of 1992, Subtitle B, Section 408 (commonly called Title X), passed by Congress on October 28, 1992, regulates the use and disposal of LBP on Federal facilities. Federal agencies are required to comply with applicable Federal, state, and local laws relating to LBP activities and hazards.

USAF policy and guidance establishes LBP management at USAF facilities. The policy incorporates by reference the requirements of 29 CFR 1910.120, 29 CFR Part 1926, 40 CFR 50.12, 40 CFR Parts 240 through 280, the CAA, and other applicable Federal regulations. In addition, the policy requires each installation to develop and implement a facility management plan for identifying, evaluating, managing, and abating LBP hazards. LBP at McConnell AFB is managed in accordance with the *Lead-Based Paint Management Plan* that was updated in 2003 (USAF, AMC 2003). The plan is designed to establish management responsibilities and procedures for identifying and controlling hazards related to the presence of LBP. The plan addresses organizational roles and responsibilities, program development, management actions, data management, and training. Maintenance and abatement records are maintained by Bioenvironmental Engineering.

Environmental Restoration Program. The ERP, formerly known as the Installation Restoration Program, is a subcomponent of the Defense ERP that became law under SARA. The ERP requires each DOD installation to identify, investigate, and clean up hazardous waste disposal or release sites.

The ERP at McConnell AFB began in 1984 with an installationwide Preliminary Assessment/Records Search that identified 13 ERP sites for further investigation. Additional investigation and assessments brought the total to 25. Currently, 18 sites are closed and no further action is planned, 1 is under investigation, and 7 are under remediation (MAFB 2005b).

Figure 2-2 shows the locations of the contaminated sites on McConnell AFB. Primary contaminants in soil and water include fuels, dissolved phase fuels, and solvents. Plans for future development in the areas of any of the ERP sites should take into consideration the possible restrictions and constraints that they represent.

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4. Environmental Consequences

This section contains four subsections. **Section 4.1** provides a general introduction to the environmental consequences analysis, including significance criteria for each resource area. **Section 4.2** presents the No Action Alternative, which is prescribed by CEQ regulations. **Section 4.3** provides a general analysis of the environmental consequences analysis by resource area. **Section 4.4** provides the detailed analysis of the Proposed Action, as presented in **Section 2.1**. Potential cumulative effects that could occur as a result of implementing the Proposed Action and other past, present, or reasonably foreseeable projects are in **Section 5**.

4.1 Introduction

The intention of this section of the IDEA is to present both a general analysis of the environmental effects of installation development activities (see **Section 4.3**), as well as a summary of site-specific environmental effects of individual installation development projects (see **Section 4.4**). The general analysis identifies the general environmental effects on each resource area of the ongoing demolition, construction, and infrastructure upgrade activities, with a focus on avoiding those areas that are constraints to development. However, a general analysis of potential development activities alone does not provide the framework to assess adequately the potential environmental consequences of a single proposed project. Therefore, **Section 4.4** presents a detailed analysis of the representative demolition, construction, and infrastructure upgrades introduced in **Sections 2.1.2, 2.1.3, and 2.1.4**, respectively, to provide a range of potential consequences that could be expected from implementing the proposed projects with the greatest potential for adverse environmental effects. The representative projects were selected for detailed analysis because they are large in scale or have a unique aspect (e.g., proposed location or operational characteristics) with the potential to result in adverse environmental effects. In addition, **Section 4.4** contains a summary of all projects identified over the next 5 years at McConnell AFB (refer to **Appendix A**) in tabular form. The analysis presented in **Sections 4.3** and **4.4** provides the basis for the cumulative effects analysis in **Section 5**. The No Action Alternative is presented in **Section 4.2** before the Proposed Action in order to provide a comparison of the potential environmental consequences of implementing the Proposed Action against no action.

The specific criteria for evaluating potential environmental effects of the No Action Alternative or the Proposed Action are described in the following text, identified by resource area. The significance of an action is also measured in terms of its context and intensity. The context and intensity of potential environmental effects are described in terms of duration, whether they are direct or indirect, the magnitude of the impact, and whether they are adverse or beneficial:

- **Short-term or long-term.** In general, short-term effects are those that would occur only with respect to a particular activity or for a finite period or only during the time required for construction or installation activities. Long-term effects are those that are more likely to be persistent and chronic.
- **Direct or indirect.** A direct effect is caused by an action and occurs around the same time at or near the location of the action. An indirect effect is caused by an action and might occur later in time or be farther removed in distance but still be a reasonably foreseeable outcome of the action.
- **Minor, moderate, or significant.** These relative terms are used to characterize the magnitude or intensity of an impact. A minor effect is slight, but detectable. A moderate effect is readily apparent. Significant effects are those that, in their context and due to their magnitude (severity), have the potential to meet the thresholds for significance set forth in CEQ regulations (40 CFR 1508.27) and, thus, warrant heightened attention and examination for potential means for

mitigation in order to fulfill the policies set forth in NEPA. Significance criteria by resource area are presented in the following text.

- ***Adverse or beneficial.*** An adverse effect is one having unfavorable or undesirable outcomes on the man-made or natural environment. A beneficial effect is one having positive outcomes on the man-made or natural environment.

The following text presents the criteria that would constitute a significant environmental effect resulting from implementation of the No Action Alternative (see **Section 4.2**), or the Proposed Action (either general demolition and construction activities as presented in **Section 4.3**, or any specific project as presented in **Section 4.4**). The same significance criteria are also applied to potential cumulative effects (see **Section 5**) of implementing the Proposed Action in conjunction with past, present, or reasonably foreseeable future actions.

Noise

Potential changes in the noise environment can be beneficial (i.e., if they reduce the number of sensitive receptors exposed to unacceptable noise levels), negligible (i.e., if the total area exposed to unacceptable noise levels is essentially unchanged), or adverse (i.e., if they result in increased noise exposure to unacceptable noise levels). Projected noise effects are evaluated quantitatively and qualitatively. An action would be considered significant if it resulted in increased noise levels that were noncompatible with Federal regulation, state regulation, or local ordinance.

Land Use

The significance of potential land use effects is based on the level of land use sensitivity in areas affected by a proposed action and compatibility of proposed actions with existing conditions. In general, a land use effect would be significant if it were to

- Be inconsistent or in noncompliance with existing land use plans or policies
- Preclude the viability of existing land use
- Preclude continued use or occupation of an area
- Be incompatible with adjacent land use to the extent that public health or safety is threatened
- Conflict with planning criteria established to ensure the safety and protection of human life and property.

Air Quality

The environmental consequences to local and regional air quality conditions near a proposed Federal action are determined based upon the increases in regulated pollutant emissions relative to existing conditions and ambient air quality. Specifically, the effect in NAAQS attainment areas, such as McConnell AFB, would be considered significant if the net increases in pollutant emissions from the Federal action would result in any one of the following scenarios:

- Cause or contribute to a violation of any national or state ambient air quality standard
- Expose sensitive receptors to substantially increased pollutant concentrations
- Represent an increase of 10 percent or more in an affected Air Quality Control Region (AQCR) emissions inventory
- Exceed any Evaluation Criteria established by a SIP.

In addition to the *de minimis* emissions thresholds, Federal PSD regulations define air pollutant emissions to be significant if the source is within 10 kilometers of any Class I area, and emissions would cause an increase in the concentration of any regulated pollutant in the Class I area of 1 $\mu\text{g}/\text{m}^3$ or more (40 CFR 52.21(b)(23)(iii)). As stated in **Section 3.3.1**, there are no Class I areas within 10 kilometers of McConnell AFB, so this significance criterion was not used for this analysis.

Safety

Any increase in safety risks would be considered an adverse effect on safety. An effect would be significant if an action were to substantially increase risks associated with the safety of construction personnel, contractors, or the local community; substantially hinder the ability to respond to an emergency; or introduce a new health or safety risk for which the installation is not prepared or does not have adequate management and response plans in place.

Geological Resources

Protection of unique geological features, minimization of soil erosion, and the siting of facilities in relation to potential geologic hazards are considered when evaluating potential effects of a proposed action on geological resources. Generally, adverse effects can be avoided or minimized if proper construction techniques, erosion-control measures, and structural engineering design are incorporated into project development.

Effects on geology and soils would be significant if they would alter the lithology, stratigraphy, and geological structure that control groundwater quality, distribution of aquifers and confining beds, and groundwater availability; or change the soil composition, structure, or function (including prime farmland and other unique soils) within the environment.

Water Resources

Evaluation criteria for effects on water resources are based on water availability, quality, and use; existence of floodplains; and associated regulations. A proposed action would have significant effects on water resources if it were to do one or more of the following:

- Substantially reduce water availability or supply to existing users
- Overdraft groundwater basins
- Exceed safe annual yield of water supply sources
- Substantially affect water quality adversely
- Endanger public health by creating or worsening health hazard conditions
- Threaten or damage unique hydrologic characteristics
- Violate established laws or regulations adopted to protect water resources.

The potential effect of flood hazards on a proposed action is important if such an action occurs in an area with a high probability of flooding.

Biological Resources

The significance of effects on biological resources is based on

- The importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource
- The proportion of the resource that would be affected relative to its occurrence in the region
- The sensitivity of the resource to proposed activities
- The duration of ecological ramifications.

Effects on biological resources would be significant if species or habitats of high concern are adversely affected over relatively large areas. Effects would also be considered significant if disturbances cause reductions in population size or distribution of a species of high concern.

Ground disturbance and noise associated with construction can directly or indirectly cause adverse effects on biological resources. Direct effects from ground disturbance are evaluated by identifying the types and locations of potential ground-disturbing activities in correlation to important biological resources. Habitat removal and damage or degradation of habitats might be adverse effects associated with ground-disturbing activities.

As a requirement under the ESA, Federal agencies must provide documentation that ensures that agency actions will not adversely affect the existence of any threatened or endangered species. The ESA requires that all Federal agencies avoid “taking” threatened or endangered species (which includes jeopardizing threatened or endangered species habitat). Section 7 of the ESA establishes a consultation process with the USFWS that ends with USFWS concurrence or a determination of the risk of jeopardy from a Federal agency project. The “take” of a federally protected species under the ESA would be considered significant.

The significance of effects on wetland resources is proportional to the functions and values of the wetland complex. Quantification of wetlands functions and values, therefore, is based on the ecological quality of the site as compared with similar sites, and the comparison of the economic value of the habitat with the economic value of the proposed activity that would modify it. A significant adverse effect on wetlands would occur should either the major function or value of the wetland be substantially altered.

Cultural Resources

Adverse effects on cultural resources can include physically altering, damaging, or destroying all or part of a resource; altering characteristics of the surrounding environment that contribute to the resource’s significance; introducing visual or audible elements that are out of character with the property or that alter its setting; neglecting the resource to the extent that it deteriorates or is destroyed; or the sale, transfer, or lease of the property out of agency ownership (or control) without adequate legally enforceable restrictions or conditions to ensure preservation of the property’s historic significance.

Socioeconomics and Environmental Justice

Construction expenditures are assessed in terms of direct effects on the local economy and related effects on other socioeconomic resources (e.g., housing). The magnitude of potential impacts can vary greatly, depending on the location of a proposed action. For example, implementation of an action that creates ten employment positions might go unnoticed in an urban area, but could have considerable impacts in a rural region. If potential socioeconomic changes were to result in substantial shifts in population trends or a decrease in regional spending or earning patterns, those effects would be considered adverse. A proposed action could have a significant effect with respect to the socioeconomic conditions in the surrounding ROI if it were to

- Change the local business volume, employment, personal income, or population that exceeds the ROI's historical annual change
- Adversely affect social services or social conditions, including property values, school enrollment, county or municipal expenditures, or crime rates
- Disproportionately impact minority populations or low-income populations.

Infrastructure

Effects on infrastructure are evaluated based on their potential for disruption or improvement of existing levels of service and additional needs for energy and water consumption, sanitary sewer and wastewater systems, and transportation patterns and circulation. Impacts might arise from physical changes to circulation, construction activities, introduction of construction-related traffic on local roads or changes in daily or peak-hour traffic volumes, and energy needs created by either direct or indirect workforce and population changes related to installation activities. In considering the basis for evaluating the significance of impacts on infrastructure resources, several items are considered. These items include, for example, evaluating the degree to which the proposed construction projects could affect the existing solid waste management program and capacity of the area landfill. An effect might be considered adverse if a proposed action exceeded capacity of a utility.

Hazardous Materials and Waste

Effects on hazardous materials and waste management would be considered significant if the Federal action resulted in noncompliance with applicable Federal and state regulations, or increased the amounts generated or procured beyond current McConnell AFB waste management procedures and capacities. Effects on pollution prevention would be considered significant if the Federal action resulted in worker, resident, or visitor exposure to these materials, or if the action generated quantities of these materials beyond the capability of current management procedures. Effects on the ERP would be considered significant if the Federal action disturbed (or created) contaminated sites resulting in adverse effects on human health or the environment. Effects on fuels management would be significant if the established management policies, procedures, and handling capacities could not accommodate the proposed activities.

4.2 Environmental Consequences of the No Action Alternative

Under the No Action Alternative, McConnell AFB would not implement the projects proposed in the installation's community of plans, which would result in the continuation of the existing condition, as described in **Section 3**. No direct environmental effects would be expected on the noise environment, land use, air quality, safety, geological resources, water resources, biological resources, cultural resources, socioeconomic resources and environmental justice, infrastructure, and hazardous materials and wastes. It is anticipated that future development would occur under the No Action Alternative, but those development projects would be analyzed through preparation of individual NEPA documents, as appropriate.

4.3 General Environmental Consequences by Resource Area

4.3.1 Noise

Intermittent short-term minor adverse impacts from noise would be expected from the implementation of the Proposed Action.

Construction Noise. Building construction, modification, and demolition work can cause noise emissions above ambient sound levels. A variety of sounds come from graders, pavers, trucks, welders, and other work processes. **Table 3-2** lists noise levels associated with common types of construction equipment that are likely to be used under the Proposed Action. Since a typical urban neighborhood is usually around 60 to 70 dBA, noise emissions from construction projects can cause short-term, adverse impacts.

Projects under the Proposed Action would require grading, paving, demolition, and building construction. All of the projects under the Proposed Action would occur on McConnell AFB property. Some of these would occur close to on-installation military housing.

Construction noise varies depending on the type of construction being done, the area that the construction would occur in, and the distance from the source. Under the Proposed Action, the majority of projects are proposed on the northeastern and eastern sides of the installation. Residents could experience noise in the 70-dBA range for those several hundred feet away and in the mid 80-dBA range for those adjacent to the project site. Examples of expected construction noise are as follows:

- Residents living on the east side of the installation (approximately 500 feet away) would experience noise levels of 69.1 dBA during the paving of roads and parking lots near them. These residents would also experience noise levels of 69.8 dBA during demolition of Building 350 and 72.4 dBA during the construction of new facilities on that site.
- Residents in the area to the northeast of the installation (approximately 3,000 feet away) would experience noise levels of 53.6 dBA during any paving operations near Buildings 1090 and 1091. These same residents would experience noise levels of 54.2 dBA during demolition of those buildings, and 56.8 dBA during construction of new facilities at those sites.

Given the extent of the projects under the Proposed Action and the proximity to residents on the installation, adverse effects from construction noise are unavoidable. However, noise generation would last only for the duration of construction activities, and could be reduced through the use of equipment exhaust mufflers and restriction of construction activity to normal working hours (i.e., between 7:00 a.m. and 5:00 p.m.). It is not anticipated that the short-term increase in ambient noise levels from the Proposed Action would cause significant adverse effects on the surrounding populations.

Operational Impacts. Once the projects under the Proposed Action are completed, the ambient noise level would return to its normal level. It is not anticipated that vehicle traffic or aircraft operations would increase under the Proposed Action. No long-term effects on the ambient noise level are anticipated as a result of the Proposed Action.

4.3.2 Land Use

No short-term or long-term effects would be expected to occur on land use. Each project would be sited in accordance with the land use categories defined in the McConnell AFB General Plan. The Proposed Action would occur entirely on McConnell AFB property. Proposed demolition projects would make some land available for proposed construction projects, which are all identified in **Appendix A**.

No off-installation residential areas would be permanently affected in a significant manner, nor would any other noncompatible land use. No areas off McConnell AFB would need to be rezoned as residential to house personnel from McConnell AFB. None of the land use significance criteria are met by the Proposed Action, and no significant effects would be expected.

4.3.3 Air Quality

The Proposed Action would generate both temporary and long-term air pollutant emissions. The construction, demolition, and infrastructure projects related to the Proposed Action would generate air pollutant emissions as a result of grading, filling, compacting, trenching, demolition, and construction operations, but these emissions would be temporary and would not be expected to generate any off-site effects. The Proposed Action does not include a net increase in personnel or commuter vehicles. Therefore, the Proposed Action's emissions from existing personnel and commuter vehicles would not result in an adverse effect on regional air quality. Regulated pollutant emissions from the Proposed Action would not contribute to or affect local or regional attainment status with the NAAQS.

The construction projects would generate total suspended particulate and PM₁₀ emissions as fugitive dust from ground-disturbing activities (e.g., grading, demolition, soil piles) and from combustion of fuels in construction equipment. Fugitive dust emissions would be greatest during the initial site preparation activities and would vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions. The quantity of uncontrolled fugitive dust emissions from a construction site is proportional to the area of land being worked and the level of construction activity.

Fugitive dust emissions for various construction activities were calculated using emissions factors and assumptions published in USEPA's AP-42 (USEPA 2006a). These estimates assume that 230 working days are available per year for construction (accounting for weekends, weather, and holidays).

Construction operations would also result in emissions of criteria pollutants as combustion products from construction equipment, as well as evaporative emissions from architectural coatings and asphalt paving operations. These emissions would be of a temporary nature. The emissions factors and estimates were generated based on guidance provided in USEPA AP-42 (USEPA 2006a).

Since McConnell AFB is in attainment for all criteria pollutants, General Conformity Rule requirements are not applicable. In addition, the Proposed Action would generate emissions well below 10 percent of the emissions inventory for the AQCR and the emissions would be short-term. Therefore, the demolition or construction activities associated with the Proposed Action would not have significant effects on air quality at McConnell AFB or on regional or local air quality. **Appendix D** shows an example of how air emissions are calculated. **Section 4.4** discusses project-specific emissions in more detail.

Operational emissions associated with the Proposed Action would not be expected to result in adverse effects on air quality. Day-to-day operations associated with the Proposed Action would generate emissions of criteria pollutants as combustion products from the burning of natural gas by boilers used to provide comfort heating as well as the combustion of fuel oil by emergency generators to produce electrical power, but these emissions would typically be offset by the removal of older and more emissive equipment. In addition, local and regional pollutant effects resulting from direct and indirect emissions from stationary emissions sources under the Proposed Action would result in no new effects on air quality as the same quantities of hazardous emitting chemicals used under the existing procedures would be used for new facilities and procedures. Any other project for the future out-years that would involve new or additional emissions would be addressed through Federal and state permitting program requirements under New Source Review regulations (40 CFR Parts 51 and 52).

4.3.4 Safety

Short-term, minor direct adverse effects would be expected from the Proposed Action. Implementation of the Proposed Action would slightly increase the short-term risk associated with construction contractors performing work at McConnell AFB during the normal workday because the level of such activity would

increase. Contractors would be required to establish and maintain safety programs. Projects associated with the Proposed Action would not pose a safety risk to installation personnel or activities at the installation. The proposed construction projects would enable 22 ARW to meet future mission objectives at the installation and conduct or meet mission requirements in a safe operating environment.

During construction activities associated with the Proposed Action, construction workers would have a possibility of encountering UXO. An ERP waiver approved by HQ AMC is required prior to accomplishing any work on or near a range. 22 CES/CEV staff should be contacted prior to commencement of construction activities to determine if an ERP waiver is required for the Proposed Action for all proposed work on or near range sites and for safety requirements that would need to be followed during construction.

4.3.5 Geological Resources

Topography. Negligible to minor adverse effects on the natural topography would be expected as a result of demolition, site preparation, and construction under the Proposed Action. The majority of the Proposed Action project sites would occur in areas that were disturbed as a result of past installation activities.

Geology. Negligible to minor adverse effects on geological resources resulting from construction and demolition activities (i.e., grading, excavating, and recontouring of the soil) would be expected as a result of implementing the Proposed Action. The majority of the Proposed Action project sites would occur in areas that were disturbed as a result of past installation activities.

Soils. Negligible to minor short- and long-term adverse effects on soils would be expected as a result of the construction of new facilities under the Proposed Action. Construction and demolition activities would be expected to directly affect the soils as a result of grading, excavation, placement of fill, compaction, mixing, or augmentation necessary to prepare the sites for development. Additional adverse effects could occur as a result of erosion and associated sedimentation during construction, especially in areas where vegetative cover was removed during site development. Construction projects would add impervious land mass, which would increase the risk for storm water runoff. However, implementation of erosion and sediment control and storm water Best Management Practices (BMPs) implemented consistent with NPDES Phase II permit requirements, the installation SWPPP, and other applicable codes and ordinances would minimize the potential for adverse effects resulting from erosion and transport of sediments in storm water runoff.

All construction projects would implement BMPs to limit potential effects resulting from construction activities. Fugitive dust from construction activities would be minimized by watering and soil stockpiling, which would reduce the total amount of soil exposed to potential suspension and wind erosion. Implementation of standard erosion-control practices (e.g., silt fencing, sediment traps, application of water sprays, phased construction, and prompt revegetation of disturbed areas) would also reduce potential impacts related to soil erosion and associated sedimentation.

No effects on prime or unique farmland would occur as a result of implementing the Proposed Action because the locations of proposed development would be in areas that are mapped as Urban Land. By definition, prime farmland has to be available for farming and cannot occur in areas designated as Urban Land.

4.3.6 Water Resources

Short-term direct minor adverse effects on surface water and groundwater would be expected as a result of construction activities associated with the Proposed Action. Long-term indirect minor adverse effects on surface water and groundwater quality would be expected as a result of the increase of impervious surfaces. Increases in impervious surfaces would change peak flow runoff, divert runoff to storm drains, and reduce runoff and infiltration of natural surfaces which reduce shallow groundwater recharge over time. The water supply is sufficient for the McConnell AFB population and the Proposed Action. Water quality and human health would not be adversely affected by the Proposed Action.

Any construction activity that disturbs 1 acre or more is required to file a NPDES permit application with KDHE for storm water runoff resulting from construction sites. Furthermore, any modifications to the conditions addressed in the current NPDES permit, which could include increased flows or new outfalls, should be coordinated early with KDHE. See **Appendix C** for the letter from KDHE. The 22 CES/CEV would review all project design and construction plans and coordinate with KDHE as appropriate to ensure that all NPDES permitting requirements are met.

Any construction activity with the potential to cross or disturb waters of the United States would require coordination and permitting with USACE under Sections 404 and 401 of CWA. The 22 CES/CEV would review all project design and construction plans and coordinate with USACE as appropriate, though water bodies would be avoided where possible. See **Section 4.4.4** for a discussion of any projects that might require this type of coordination.

Groundwater. The activities associated with the Proposed Action would have negligible adverse effects on groundwater quality. Implementation of storm water and spill prevention BMPs developed consistent with the installation SWPPP and other applicable plans would minimize potential runoff or spill-related impacts on groundwater.

Surface Water. Implementation of the Proposed Action would be expected to have negligible to minor adverse effects on surface water and surface water quality. Adherence to proper engineering practices and implementation of erosion and sediment control and storm water BMPs developed consistent with the installation SWPPP (regulated by the KDHE) and other plans would minimize runoff-related impacts and the potential for adverse effects on surface water quality. A negligible to minor increase in the conveyance of nonpoint source pollutants in runoff to the tributaries on the installation could occur in association with construction and demolition activities. The potential for increased conveyance of nonpoint source pollutants to the tributaries would be minimized by implementing applicable storm water management practices.

Development of the Proposed Action would result in an increase of impervious surfaces, including the development of access roads and parking areas to accommodate the new facilities. Storm water management controls would be designed and implemented consistent with NPDES Phase II permit requirements and the installation SWPPP to minimize potential adverse effects on surface waters associated with the increased impervious surfaces.

Floodplain. In accordance with EO 11988, construction activities in the 100-year floodplain must be avoided. There are no FEMA mapped 100-year floodplains at McConnell AFB due to the small size of streams on the installation. Any construction activities within the 100-year floodplain, should it be delineated in the future, would require approval from HQ AMC and separate NEPA analysis.

4.3.7 Biological Resources

The Proposed Action would result in short-term and long-term minor adverse effects on biological resources. McConnell AFB has an Integrated Natural Resources Management Plan (INRMP) that contains detailed information about biological resource management. Under the Proposed Action, all projects would be implemented in accordance with the guidelines set forth in the INRMP (MAFB 2004a).

Any construction activity with the potential to affect wetlands would require permitting and coordination with USACE. No projects in this IDEA were identified within wetlands. However, 22 CES/CEV would review all project design and construction plans to determine if wetlands could be affected. A current jurisdictional wetlands determination would be necessary prior to conducting activities that could affect wetlands or other waters of the United States. If a project location changes and a wetland could not be avoided as a result of that change, then additional NEPA analysis would be required. The USAF avoids impacts on wetlands whenever practicable.

Vegetation. Short-term and long-term minor adverse effects on vegetation could occur as a result of construction associated with the Proposed Action. The majority of projects associated with the Proposed Action would occur in the improved areas of McConnell AFB, which would primarily affect landscaped species. The possible removal of trees would create a long-term minor adverse effect on vegetation. Following construction, disturbed areas would be landscaped in accordance with McConnell AFB standards.

Wildlife. Short-term minor adverse effects on wildlife could occur as a result of construction noise and minor loss of habitat associated with the Proposed Action. The majority of projects associated with the Proposed Action would occur in improved areas of McConnell AFB that are not considered good wildlife habitat. Birds, mammals, and reptiles that occur at the installation might visit these areas, but are likely to spend the majority of their time in the undeveloped portions. Therefore the effects of construction noise and heavy equipment use would be slightly adverse in the short-term. However, wildlife affected by noise would quickly recover once the construction noise ceased.

Protected and Sensitive Species. There are no Federal- or state-listed species documented to occur on McConnell AFB. Thus, no adverse effects on Federal- or state-listed species would be expected to occur as a result of implementing the Proposed Action. In a letter dated July 20, 2006, the Field Supervisor of the USFWS Kansas Ecological Services Field Office concurred that no significant adverse effects on fish and wildlife resources, including threatened and endangered species, would occur at McConnell AFB (see **Appendix C**). There would be no adverse effects on listed avian species that are passing through McConnell AFB, protected under the Migratory Bird Treaty Act, because no construction activities would occur in prairie, wetlands, streams, woodlands, or other areas that are considered suitable habitat.

Wetlands. In accordance with EO 11990, *Protection of Wetlands*, the USAF must demonstrate that there are no practicable alternatives to construction within wetlands. There are approximately 14.8 acres of potential wetlands on McConnell AFB (see **Figure 2-2**), which are primarily in the less-developed areas of the installation. The USAF avoids military operations in wetlands, where possible.

There are no demolition or construction activities proposed near these potential wetlands. Construction activities adjacent to wetlands could result in adverse effects because of erosion and sedimentation. These types of impacts would be minimized using BMPs (as described under **Section 4.3.6**, Water Resources) and would not require mitigation. If a proposed project is relocated into a wetland, then that project would require approval from HQ AMC and additional NEPA analysis. A current jurisdictional wetlands determination would be necessary prior to conducting activities that could affect wetlands or other waters of the United States.

4.3.8 Cultural Resources

The Proposed Action could result in minor adverse effects on cultural resources, either through demolition or alteration of eligible buildings or structures on the installation, or through inadvertent discovery and damage to previously unrecorded archaeological resources. Beneficial long-term effects on architectural resources would also be expected by preventing deterioration. McConnell AFB has an ICRMP that contains detailed information about cultural resources management and the plans that are in place in the event of the discovery of archaeological artifacts or human remains. Under the Proposed Action, all projects would be implemented in accordance with the guidelines set forth in the ICRMP (MAFB 2004b).

In a letter dated April 27, 2007, the SHPO concurred with the assessment in this IDEA. The 22 CES/CEV would review all project design and construction plans and coordinate with the Kansas SHPO on individual projects as needed in the future to avoid potentially adverse effects on cultural resources (see **Appendix C**).

Archaeological Resources. There are no known pre-contact or post-contact period sites in the areas where ground-disturbing activities would occur. The areas in the APE are not considered to have a high sensitivity for archaeological resources. Furthermore, the area has suffered heavy disturbance in the past, reducing the chances of finding intact archaeological resources. Therefore, no direct or indirect effects on archaeological resources would be expected under the Proposed Action. Construction personnel involved in ground-disturbing and excavation activities would be aware of the appropriate procedures outlined in the McConnell AFB ICRMP if artifacts or archaeological resources are inadvertently discovered (MAFB 2004b).

Architectural Resources. Maintenance and repair of historic buildings and structures could result in adverse effects. Some maintenance and renovation activities, such as window replacements, could adversely alter the appearance and character of a historic building. Conversely, maintenance and repair of historic facilities can preserve historic and distinctive attributes when done in accordance with the *Secretary of the Interior's Standards for Rehabilitation*. When maintenance, repair, and rehabilitations are carried out properly, historic buildings can be adapted to other functional uses without deteriorating to the point that historical significance is lost. Historic facilities on military installations face the additional challenge of maintaining security requirements.

The Proposed Action could result in minor modifications to historic facilities on McConnell AFB. However, McConnell AFB would conduct all modifications in accordance with the *Secretary of the Interior's Standards for Rehabilitation*. The SHPO would be consulted where necessary to review and approve specific building plans so that the historical integrity is not changed. Beneficial effects would be expected by increasing the utility and function of historic structures and preventing deterioration.

There is no potential for degradation of setting from noise and visual intrusion related to the construction activities proposed in this EA. The setting around the existing NRHP structures has been modified over time so proposed construction and demolition activities would have no affect on the surrounding visual environment, and the installation is dominated by aircraft noise. There is no potential for structural damage from noise and low-frequency sound vibrations associated with the construction activities.

Traditional Cultural Properties. The potential for discovering resources culturally significant to the Wichita Tribe and the Osage Tribe of Oklahoma is low. No direct or indirect effects on traditional cultural properties would be expected under the Proposed Action. However, in the event of the inadvertent discovery of human remains during ground-breaking activity, the appropriate procedures identified in the McConnell AFB ICRMP would be followed (MAFB 2004b).

In the event of an inadvertent discovery during construction, all work in the immediate vicinity of the discovery would be halted until the resources are identified and documented and an appropriate mitigation strategy developed in consultation with the SHPO and other consulting parties. In compliance with NAGPRA, concerned tribal representatives would be notified and consulted about the proposed treatment of human remains and funerary and sacred objects should these be discovered during implementation of the Proposed Action.

4.3.9 Socioeconomics and Environmental Justice

The Proposed Action would not result in any adverse effects on socioeconomic or environmental justice. New construction efforts would result in short-term increases in employment opportunities.

Socioeconomics. The Proposed Action might involve a change in the number of personnel at McConnell AFB. Construction would only temporarily affect employment levels. Therefore, there would be no long-term effects on the local workforce or employment levels in the ROI or MSA.

Construction costs associated with the Proposed Action would have a direct, beneficial impact on the local economy (MAFB 2006b). It is assumed that construction crews and equipment would be employed from the local workforce, resulting in beneficial short-term direct effects on employment and the local economy.

Indirect effects from the proposed construction projects are expected to be short-term and beneficial on local employment and the local economy. Indirect beneficial effects could include construction expenditures for building materials, construction workers wages and taxes, and purchases of goods and services in the area. Construction projects for the Proposed Action would occur over the next 5 years. Therefore, no long-term effects on population, personal income, poverty levels, or other demographic or employment indicators in the ROI would be expected.

Environmental Justice. The USAF has issued guidance on environmental justice analysis for EAs. To comply with EO 12898, ethnicity and poverty status in the study area have been examined and compared to regional and state statistics to determine if minority or low-income groups could be disproportionately affected by the Proposed Action. The review indicates that residents living within Tracts 55, 65, 66, 67, 70, 72.02, and 100.03 have higher percentages of minority populations than the MSA and Kansas. Tracts 58, 59, 65, 67, and 70 have substantially higher percentages of residents living below the poverty level than regional or state averages (see **Table 3-8**).

Potential adverse effects from new construction activities would occur on McConnell AFB, with no adverse effects anticipated off-installation. Construction activities at McConnell AFB would be dispersed throughout the installation over the next 5 years. The environment around McConnell AFB is influenced by USAF operations, land management practices, vehicle traffic, and emissions sources outside the installation. Possible adverse effects from construction such as increased traffic, noise, and decreased air quality would be experienced equally by residents on-installation or residents off-installation. Therefore, no disproportionate impacts on minority or low-income populations from the Proposed Action were identified.

4.3.10 Infrastructure

The Proposed Action would not result in any long-term minor adverse effects on the installation's infrastructure. Long-term beneficial effects would be realized from improved infrastructure and communication systems. Most routine infrastructure improvements are categorically excluded from detailed analysis under Appendix B to 32 CFR Part 989 (i.e., A2.3.8, A2.3.9, A2.3.10, A2.3.11, A2.3.12,

A2.3.13, or A2.3.14), unless a particular project is unusually large or traverses a sensitive area of the installation. Infrastructure projects that would normally be categorically excluded from analysis in an EA or EIS are not included in this IDEA (see **Appendix A** for a complete list of projects that are analyzed in this IDEA).

Airfield. As discussed in **Section 3.10**, the McConnell AFB airfield pavement system was determined to be adequate. The hangar area pavement is assessed and repaired every 5 years to prevent deterioration. The installation would continue maintenance and repairs of the airfield at McConnell AFB keeping conditions adequate. No adverse effects on the airfield would be expected from the Proposed Action.

The airfield lighting system was determined to be in fair to poor condition (see **Section 3.10**). Therefore, the installation proposes bringing lighting along the airfield into compliance with USAF and AMC standards. Programmed projects to do this include installation of new switchgear, runway and taxiway edge lighting, manholes, and underground utility lines. Completion of these projects would upgrade the airfield lighting system. No adverse effects on the airfield lighting system would be expected from the Proposed Action.

Communications. McConnell AFB continually upgrades the communications system on-installation as needed. Services and infrastructure are available to support a wide range of communications requirements and are capable of supporting future development at McConnell AFB. No adverse effects on communications systems would be expected from the Proposed Action.

Electrical. McConnell AFB continually updates the electrical distribution system as needed, including moving aboveground lines below ground when power poles have reached the end of their useful life. As discussed in **Section 3.10**, the electrical distribution and backup power systems were determined to be adequate to meet current and future demands at McConnell AFB. No adverse effects on electrical systems would be expected from the Proposed Action.

Heating and Cooling. McConnell AFB continually repairs and replaces HVAC systems. The combination of upgraded HVAC systems and scheduled repairs has made the heating and cooling systems at McConnell AFB adequate. No adverse effects on heating and cooling systems would be expected from the Proposed Action.

Liquid Fuel. The Proposed Action at McConnell AFB would include a new Type III hydrant system. This system would house two hydrants and two ASTs with a capacity of 10,000 barrels and pump house. Therefore, with the planned improvements for storage along with the existing system determined to be adequate, no adverse effects on liquid fuel systems would be expected from the Proposed Action.

Natural Gas. As discussed in **Section 3.10**, much of the natural gas system was replaced in the 1990s. McConnell AFB continually repairs and replaces old steel lines with plastic piping as it is needed. Natural gas service at McConnell AFB was rated at better than adequate to meet current and future demands at McConnell AFB. No adverse effects on natural gas systems would be expected from the Proposed Action.

Sanitary Sewer. The sanitary sewer system was determined to be adequate (see **Section 3.10**). The main lift station was replaced and the existing three lift stations are in good condition. McConnell AFB continually replaces the clay sewer lines on the east side of the parking apron that are in poor condition as replacements are needed. No adverse effects on sanitary sewer systems would be expected from the Proposed Action.

Transportation Network. The construction and demolition phase of the Proposed Action at McConnell AFB would require delivery of materials to and removal of debris from construction sites. Construction traffic would comprise a small percentage of the total existing traffic and many of the vehicles would be driven to and kept on-site for the duration of construction and demolition, resulting in relatively few additional trips. The proposed installation development activities would occur at different times and locations on McConnell AFB. Furthermore, potential increases in traffic volume associated with proposed demolition and construction activity would be temporary. Therefore, increased traffic associated with construction vehicles would be expected to have a short-term minor adverse effect on the transportation network at McConnell AFB.

McConnell AFB has a highly rated transportation network that is maintained by proactive repair and replacement projects. Maintenance has been quick to respond to disturbances in the pavement that are the result of heat. The Proposed Action would provide upgraded roadways on McConnell AFB. No adverse effects would be expected.

Water. McConnell AFB continually implements projects to improve the water supply system on McConnell AFB. Future improvements involve placing the remaining asbestos cement transit pipes with plastic pipes, providing a loop and back feed to the western portion of the installation to connect the remainder of the system, and improvements to the pump station to increase retention of residual chlorine in the drinking water. As discussed in **Section 3.10**, the water supply system was rated as better than adequate with improvement such as a new water storage tower, installation of plastic mains, and the addition of the second supply connect point having been made. No adverse effects on water supply systems would be expected from the Proposed Action.

Solid Waste. Direct short-term minor adverse effects would result from increased construction and demolition waste production during construction. Solid waste generated from the proposed construction and demolition activities would consist of building materials such as solid pieces of concrete, metals (conduit, piping, and wiring), and lumber. Contractors would be required to recycle construction and demolition to the greatest extent possible as part of installation policy, and any recycled construction and demolition waste would be diverted from landfills. Much of the demolition debris would likely be contaminated with nails, rebar, or other building materials that would limit recycling. Construction and demolition waste is generally uncontaminated and would be reused or recycled if possible. All of the construction and demolition waste would be sent to an approved local landfill. As described in **Section 2.1**, construction and demolition activities would occur over an estimated 5-year timeframe. Any nonhazardous waste (i.e., construction and demolition waste) must be disposed of in a KDHE-permitted landfill (see letter in **Appendix C**).

4.3.11 Hazardous Materials and Waste

The Proposed Action would not result in any long-term adverse effects on hazardous materials use or hazardous waste generation. Short-term minor adverse effects resulting from use of hazardous materials during construction, such as sealants and solvents, would be minimal.

New facilities and procedures for the corrosion control facility and deicing projects would result in no new effects on quantities of hazardous material as compared to the quantities of chemicals (i.e., paints and glycol) used under the existing procedures. These two proposed projects would result in no increase in quantities of hazardous materials and would conform to existing management plans.

Hazardous Materials. Products containing hazardous materials would be procured and used during the proposed construction. It is anticipated that the quantity of products containing hazardous materials used during each construction would be minimal and their use would be of short duration. Cumulatively, there

would be a large quantity of hazardous materials used. Contractors would be responsible for the management of hazardous materials, which would be handled in accordance with Federal, state, and USAF regulations.

Contractors would report the use of hazardous materials to the 22 CES/CEV. A list of all hazardous materials should include a copy of each material's MSDS, an estimate of how much material would be used, amount stored, duration of use, and location on the facility prior to the start of work. The increase in hazardous materials would not affect overall management plans or capacities for handling these materials. The deicing project would use the same quantities of glycol as in the past years. Therefore, the Proposed Action would have no effect on hazardous materials management at McConnell AFB.

Hazardous Waste. It is anticipated that the quantity of hazardous wastes generated from proposed construction activities would be negligible. Contractors would be responsible for the disposal of hazardous wastes in accordance with Federal and state laws and regulations, as well as McConnell AFB's Hazardous Waste Management Plan. This increase would not be expected to affect the management plans or capacities for handling this waste. Therefore, the Proposed Action would contribute negligibly to the installation's hazardous waste management program and result in no adverse effects.

Pollution Prevention. Quantities of hazardous materials and chemical purchases, off-installation transport of hazardous wastes, disposal of municipal solid wastes, and energy consumption would continue and increase during construction. Operations associated with the Proposed Action would require procurement of products containing hazardous materials, generation of hazardous waste, and consumption of energy consistent with the baseline condition. The Pollution Prevention Program at McConnell AFB would accommodate the Proposed Action.

Radon. McConnell AFB is within an area of moderate potential for radon gas decay (USEPA 2006b), which means that indoor activity is on average between 2 and 4 pCi/L. Radon gas is typically found in underground or enclosed spaces. It could be necessary to install ventilation and monitor any of the proposed projects that would involve underground or enclosed spaces. Ventilation and monitoring of radon levels would ensure that there would be no long-term adverse effects associated with radon gas.

Asbestos-Containing Materials and Lead-Based Paint. Specifications for proposed construction activities (as discussed in **Section 3.11**) and USAF regulations prohibit the use of ACM and LBP for new construction. Buildings scheduled for demolition could contain ACM and LBP and, therefore, would need to be surveyed by the contractor for ACM and LBP prior to commencing demolition activities. The 22 CES/CEV maintains maintenance and abatement records. Sampling for ACM and LBP would occur prior to demolition activities and would be handled in accordance with the McConnell AFB Asbestos and Lead-Based Paint Management Plans (22 CES/CEV 2003; USAF, AMC 2003) and USAF policy.

In Kansas, the removal of friable ACM must be performed by a Kansas-licensed asbestos abatement contractor. Written notification of the intent to demolish building with ACM is also required under 40 CFR 61.145; a Demolition Notification Form must be sent to KDHE (see letter in **Appendix C**). Many buildings proposed for demolition or renovations have ACM. The 22 CES/CEV would review all project design and construction plans and coordinate with KDHE as appropriate.

Environmental Restoration Program. There is the potential for construction workers to encounter contamination from ERP sites during construction. Therefore, it is recommended that a health and safety plan be prepared in accordance with OSHA requirements prior to commencement of construction activities. Workers performing soil removal activities within ERP Sites are required to have OSHA 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training. In addition to this training, supervisors are required to have an OSHA Site Supervisor certification. Should contamination

be encountered, then handling, storage, transportation, and disposal activities would be conducted in accordance with applicable Federal, state, and local regulations; AFIs; and McConnell AFB programs and procedures. HAZWOPER regulations that protect workers and the public at or near a hazardous waste clean-up site are discussed in 29 CFR 1910.120 and 29 CFR Part 1926. The Hazardous Sites Cleanup Act 108 of 1988 provides the regulations for the cleanup of hazardous waste sites, and response and investigation for liability and cost recovery, and established the Hazardous Sites Cleanup Fund.

Any proposed project that has the potential to interfere with an ERP site must be coordinated on an individual basis with KDHE and USEPA. A letter from KDHE is included in **Appendix C** in response to the Draft EA. The 22 CES/CEV would review all project design and construction plans and coordinate with KDHE and USEPA as appropriate. See **Sections 4.4.2.2, 4.4.2.3, and 4.4.4** for a discussion of projects that could potentially affect or be affected by ERP sites.

4.4 Detailed Environmental Consequences of the Proposed Action

This section presents the potential environmental consequences that could occur as a result of the Proposed Action. **Sections 4.4.1, 4.4.2, and 4.4.3** analyze in detail those projects identified in **Section 2** as representative of potential environmental consequences because of the size or other sensitive aspects of these projects. The proposed locations of these representative demolition, construction, and infrastructure projects, as well as potential environmental and operational constraints, are shown in **Figure 2-2**.

4.4.1 Representative Demolition Projects

4.4.1.1 Project D1. Demolish Buildings 1090 and 1091

Buildings 1090 and 1091 are currently used as the supply/mobility and logistics center. These buildings are old and have reached the end of their useful life. Demolition would provide an estimated 211,720 ft² of open space for new buildings, pavement, and infrastructure. It is anticipated that the new base civil engineering (BCE) complex would be constructed in this area of the installation, once Buildings 1090 and 1091 are demolished. There are no sensitive environmental or operational constraints in the vicinity of these buildings (see **Figure 2-2**).

Noise. Short-term minor adverse effects on noise levels would be expected as a result of the demolition of Buildings 1090 and 1091. The noise emanating from the proposed demolition of these buildings would be localized, short-term, and intermittent during construction equipment and machinery operations. **Table 3-2** shows the predicted noise levels for various pieces of construction equipment operating at 50 feet from the source. Heavy construction equipment would not be operational during the entire demolition period, which would limit the duration of increased noise levels. The demolition of these buildings would be expected to result in noise levels comparable to those indicated in **Table 4-1**. This area of McConnell AFB is used for industrial activities; typical noise receptors would include USAF personnel working in civil engineer shops, supply facilities, transportation maintenance and operations facilities, and utility operations. Typical noise receptors would be approximately 500 feet from the source of the demolition noise; noise levels would be comparable to that of a very noisy urban residential area (see **Table 3-1**).

Land Use. Long-term beneficial effects would be expected from demolition of Buildings 1090 and 1091. Demolition activities would have beneficial effects on the installation's organizational functions by removing old, outdated facilities and creating open space for future development. The construction of new facilities where land has been made available by demolition reduces the amount of undisturbed land required for future development. The demolition of Buildings 1090 and 1091, which are currently

Table 4-1. Predicted Noise Levels Resulting from Demolition of Buildings 1090 and 1091

Proposed Project	Project Size (ft ²)	dBA at 50 feet	dBA at 300 feet	dBA at 500 feet	dBA at 1,000 feet	dBA at 3,000 feet
Demolish Building 1090	212,000	90	75	70	65	55
Demolish Building 1091	2,230	88	73	68	62	52
Total	214,230	90	75	70	65	55

Note: The noise levels were added together logarithmically, so noise levels cannot be added directly together.

industrial facilities, is anticipated to make land available for the construction of the new BCE complex, which would also be industrial facilities. Therefore, no changes in land use functions would be expected. Present and future land uses would be compatible.

Air Quality. Short-term minor adverse effects would be expected as a result of the demolition of Buildings 1090 and 1091. Demolition activities would result in air emissions from the operation of heavy machinery. Fugitive particulate matter would be minimized by continually spraying water over the demolition area. Demolition of these buildings would be expected to result in air emissions comparable to those indicated in **Table 4-2**.

Table 4-2. Expected Criteria Pollutant Emissions Resulting from Demolition of Buildings 1090 and 1091

Proposed Project	Project Size (ft ²)	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO _x (tpy)	PM (tpy)
Demolish Building 1090	212,000	0.5	0.08	0.7	0.01	6.2
Demolish Building 1091	2,230	<0.01	<0.01	<0.01	<0.01	0.07
Total	214,230	0.5	0.08	0.7	0.01	6.3
<i>10% of Regional Emissions Inventory</i>		3,088	3,520	19,336	835	8,528

McConnell AFB is in attainment for all criteria pollutants, so the General Conformity Rule does not apply. In addition, the criteria pollutants generated by the demolition of Buildings 1090 and 1091 would not exceed 10 percent of the regional emissions values.

Safety. Short-term minor adverse effects would be expected from the demolition of Buildings 1090 and 1091 as a result of the risks associated with construction-type activities. No long-term effects would be expected. Although all contractors are required to follow and implement OSHA standards to establish and maintain safety procedures, there would be an increase risk of accidents with increased demolition activities. Construction workers could encounter contamination as a result of ACM or LBP. These hazards are discussed in more detail in the subsection addressing *Hazardous Materials and Wastes*. Demolition activities would be accomplished in accordance with Federal, state, and local regulations to minimize hazards associated with hazardous materials, wastes, and substances.

Geological Resources. Short-term adverse effects would be expected from grading, excavating, and grooming of the soil. Soils in the vicinity of Buildings 1090 and 1091 have been heavily disturbed by previous activities. BMPs would be employed during demolition activities to minimize potentially adverse effects on soil and prevent soil and erosion runoff. All demolition activities would comply with the installation's SWPPP (MAFB 2004c) and employ erosion-control techniques such as silt-fencing, sediment traps, and application of water sprays. Disturbed areas would be revegetated with native vegetation, as necessary. Grading, excavation, and recontouring of soil materials would adhere to Federal, state, and local regulations.

Water Resources. The demolition of Buildings 1090 and 1091 has the potential to result in minor adverse effects as a result of erosion and sedimentation associated with ground-disturbing activities. BMPs in accordance with the installation's SWPPP would be implemented, reducing the potential for adverse effects on surface water bodies. Any construction activity that disturbs 1 acre or more is required to file a NPDES permit application with KDHE for storm water runoff resulting from construction sites. McConnell AFB is committed to managing water resources in accordance with the installation's INRMP (MAFB 2004a); SWPPP (MAFB 2004c); and all applicable Federal, state, and local regulations and policies.

Biological Resources. The demolition of Buildings 1090 and 1091 would not be expected to result in adverse effects on biological resources. The vicinity of Buildings 1090 and 1091 is heavily disturbed; there is minimal existing vegetation, no suitable habitat for wildlife, and no wetlands. Furthermore, there are no known Federal- or state-protected species that occur on McConnell AFB. McConnell AFB is committed to managing biological resources in accordance with the installation's INRMP (MAFB 2004a) and all applicable Federal, state, and local regulations and policies.

Cultural Resources. The demolition of Buildings 1090 and 1091 would not be expected to result in adverse effects on cultural resources. There are no known archaeological sites or traditional cultural properties in the vicinity of this proposed demolition, and the area is currently heavily disturbed with low potential to yield intact resources in the future. Buildings 1090 and 1091 were constructed in 1952 and 1992, respectively, and are not considered historically significant or eligible for the NRHP. McConnell AFB is committed to managing cultural resources according to the installation's ICRMP (MAFB 2004b) and all applicable Federal, state, and local regulations and policies.

Socioeconomics and Environmental Justice. Negligible effects on socioeconomic resources would be expected from the proposed demolition of Buildings 1090 and 1091. The demolition activities would provide temporary employment for contractors in the area. Demolition would occur entirely on McConnell AFB and have little potential to affect off-installation resources.

Infrastructure. Negligible effects on infrastructure resources would be expected from the demolition of Buildings 1090 and 1091. Removal of these facilities would result in less demand for certain utilities, but this reduction would be negligible when compared with total installation usage. Short-term adverse effects would be expected as a result of the generation of approximately 16,603 tons of demolition debris (USEPA 1998). This is a short-term adverse effect in that debris would only be generated during the demolition activities; however, debris that is not recycled would be landfilled, which would be considered a long-term irreversible adverse effect.

Hazardous Materials and Wastes. No long-term effects on hazardous materials management or hazardous waste generation would be expected as a result of the proposed demolition of Buildings 1090 and 1091. However, because of its age, Building 1090 should be assumed to contain both ACM and LBP. Sampling for ACM and LBP should occur prior to any demolition activities so that these materials can be properly characterized, handled, and disposed of in accordance with the McConnell AFB Asbestos

Management and Operating Plan (22 CES/CEV 2003), Lead-Based Paint Management Plan (USAF, AMC 2003), and USAF policy. The demolition of Buildings 1090 and 1091 would not affect or be affected by ERP sites.

4.4.1.2 Project D2. Demolish Buildings 750 and 810

Building 750 is a 22 ARW headquarters facility, and Building 810 is the law center. These buildings are old and have reached the end of their useful life. Demolition would provide an estimated 35,980 ft² of open space for new buildings, pavement, and infrastructure. There are no sensitive environmental or operational constraints in the vicinity of these buildings (see **Figure 2-2**).

Noise. Short-term minor adverse effects on noise levels would be expected as a result of the demolition of Buildings 750 and 810. The noise emanating from the proposed demolition of these buildings would be localized, short-term, and intermittent during construction equipment and machinery operations. **Table 3-2** shows the predicted noise levels for various pieces of construction equipment operating at 50 feet from the source. Heavy construction equipment would not be operational during the entire demolition period, which would limit the duration of increased noise levels. The demolition of these buildings would be expected to result in noise levels comparable to those indicated in **Table 4-3**. This area of McConnell AFB is used for administrative functions; typical noise receptors would include USAF personnel working in offices, family services and support centers, headquarters function, and communication. Typical noise receptors would be approximately 500 feet from the source of the demolition noise; noise levels would be comparable to that of a very noisy urban residential area (see **Table 3-1**).

Table 4-3. Predicted Noise Levels Resulting from Demolition of Buildings 750 and 810

Proposed Project	Project Size (ft ²)	dBA at 50 feet	dBA at 300 feet	dBA at 500 feet	dBA at 1,000 feet	dBA at 3,000 feet
Demolish Building 750	42,540	89	74	69	64	54
Demolish Building 810	9,460	88	73	68	62	52
Total	52,000	89	74	69	64	54

Note: The noise levels were added together logarithmically, so noise levels cannot be added directly together.

Land Use. Long-term beneficial effects would be expected from demolition of Buildings 750 and 810. Demolition activities would have beneficial effects on the installation's organizational functions by removing old, outdated facilities and creating open space for future development. The construction of new facilities where land has been made available by demolition reduces the amount of undisturbed land required for future development. It is anticipated that the demolition of Building 750 would make space available for the construction of a new base chapel. No changes in land use functions would be expected. Present and future land uses would be compatible.

Air Quality. Short-term minor intermittent adverse effects would be expected as a result of the demolition of Buildings 750 and 810. Demolition activities would result in air emissions from the operation of heavy machinery. Fugitive particulate matter would be minimized by continually spraying water over the demolition area. Demolition of these buildings would be expected to result in air emissions comparable to those indicated in **Table 4-4**.

McConnell AFB is in attainment for all criteria pollutants, so the General Conformity Rule does not apply. In addition, the criteria pollutants generated by the demolition of Buildings 750 and 810 would not exceed 10 percent of the regional emissions values.

Table 4-4. Expected Criteria Pollutant Emissions Resulting from Demolition of Buildings 750 and 810

Proposed Project	Project Size (ft ²)	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO _x (tpy)	PM (tpy)
Demolish Building 750	42,540	0.09	0.02	0.1	<0.01	1.3
Demolish Building 810	9,460	0.02	<0.01	<0.01	<0.01	0.3
Total	52,000	0.1	0.02	0.2	<0.01	1.5
<i>10% of Regional Emissions Inventory</i>		3,088	3,520	19,336	835	8,528

Safety. Short-term minor adverse effects would be expected from the demolition of Buildings 750 and 810 as a result of the risks associated with construction-type activities. No long-term effects would be expected. Although all contractors are required to follow and implement OSHA standards to establish and maintain safety procedures, there would be an increased risk of accidents with increased demolition activities. Construction workers could encounter contamination as a result of ACM or LBP. These hazards are discussed in more detail in the subsection addressing *Hazardous Materials and Wastes*. Demolition activities would be accomplished in accordance with Federal, state, and local regulations to minimize hazards associated with hazardous materials, wastes, and substances.

Geological Resources. Short-term adverse effects would be expected from grading, excavating, and grooming of the soil. Soils in the vicinity of Buildings 750 and 810 have been heavily disturbed by previous activities. BMPs would be employed during demolition activities to minimize potentially adverse effects on soil and prevent soil and erosion runoff. Disturbed areas would be revegetated with native vegetation, as necessary. Grading, excavation, and recontouring of soil materials would adhere to Federal, state, and local regulations.

Water Resources. The demolition of Buildings 750 and 810 has the potential to result in minor adverse effects as a result of erosion and sedimentation associated with ground-disturbing activities. BMPs in accordance with the installation's SWPPP would be implemented, reducing the potential for adverse effects on surface water bodies. Any construction activity that disturbs 1 acre or more is required to file a NPDES permit application with KDHE for storm water runoff resulting from construction sites. McConnell AFB is committed to managing water resources in accordance with the installation's INRMP (MAFB 2004a); SWPPP (MAFB 2004c); and all applicable Federal, state, and local regulations and policies.

Biological Resources. The demolition of Buildings 750 and 810 would not be expected to result in adverse effects on biological resources. The vicinity of Buildings 750 and 810 is maintained as mowed vegetation and landscaping. There is minimal suitable habitat for wildlife, and no wetlands. Furthermore, there are no known Federal- or state-protected species that occur on McConnell AFB. McConnell AFB is committed to managing biological resources in accordance with the installation's INRMP (MAFB 2004a) and all applicable Federal, state, and local regulations and policies.

Cultural Resources. The demolition of Buildings 750 and 810 would not be expected to result in adverse effects on cultural resources. There are no known archaeological sites or traditional cultural properties in the vicinity of this proposed demolition, and the area is heavily disturbed with low potential to yield intact resources in the future. Buildings 750 and 810 have been evaluated and are not considered historically significant or eligible for the NRHP. McConnell AFB is committed to managing cultural resources according to the installation's ICRMP (MAFB 2004b) and all applicable Federal, state, and local regulations and policies.

Socioeconomics and Environmental Justice. Negligible effects on socioeconomic resources would be expected from the proposed demolition of Buildings 750 and 810. The demolition activities would provide temporary employment for contractors in the area. Demolition would occur entirely on McConnell AFB and have little potential to affect off-installation resources.

Infrastructure. Negligible effects on infrastructure resources would be expected from the demolition of Buildings 750 and 810. Removal of these facilities would result in less demand for certain utilities, but this reduction would be negligible when compared with total installation usage. Short-term adverse effects would be expected as a result of the generation of approximately 4,030 tons of demolition debris (USEPA 1998). This is a short-term adverse effect in that debris would only be generated during the demolition activities; however, debris that is not recycled would be landfilled, which would be considered a long-term irreversible adverse effect.

Hazardous Materials and Wastes. No long-term effects on hazardous materials management or hazardous waste generation would be expected as a result of the proposed demolition of Buildings 750 and 810. However, because of their ages, both buildings should be assumed to contain both ACM and LBP. Sampling for ACM and LBP should occur prior to any demolition activities so that these materials can be properly characterized, handled, and disposed of in accordance with the McConnell AFB Asbestos Management and Operating Plan (22 CES/CEV 2003), Lead-Based Paint Management Plan (USAF, AMC 2003), and USAF policy. The demolition of Buildings 750 and 810 would not affect or be affected by ERP sites.

4.4.1.3 Project D3. Demolish Buildings 697, 682, 685, 688, 689, 690, 692, 948, 695, 696, 691, 693, 699, 701, 937, 938, 976, 1290, 1291, 694, 683, 681, 684, and 808

These buildings are the current BCE facilities. They are old and have reached the end of their useful lives. Demolition would provide an estimated 70,000 ft² of open space for new buildings, pavement, and infrastructure. It is anticipated that Buildings 697, 682, 685, 688, 689, 690, and 692 would be demolished in Phase I; Buildings 948, 695, 696, 691, 693, 699, 701, 937, 938, 976, 694, 1290, and 1291 would be demolished in Phase II; and Buildings 683, 681, 684, and 808 would be demolished in Phase III. Demolition activities would create open space in this industrial area that would be available for future development. There are no other sensitive environmental or operational constraints in the vicinity of these buildings (see **Figure 2-2**).

Noise. Short-term minor adverse effects on noise levels would be expected as a result of the demolition of these facilities. The noise emanating from the proposed demolition of these buildings would occur in three phases, but noise levels would be localized and intermittent during construction equipment and machinery operations. **Table 3-2** shows the predicted noise levels for various pieces of construction equipment operating at 50 feet from the source. Heavy construction equipment would not be operational during the entire demolition period, which would limit the duration of increased noise levels. The demolition of these buildings would be expected to result in noise levels comparable to those indicated in **Table 4-5**. This area of McConnell AFB is used for industrial activities; typical noise receptors would

include USAF personnel working in civil engineer shops, supply facilities, transportation maintenance and operations facilities, and utility operations. Typical noise receptors would be approximately 500 feet from the source of the demolition noise; noise levels would be comparable to that of a very noisy urban residential area (see **Table 3-1**).

Table 4-5. Predicted Noise Levels Resulting from Demolition of Current BCE Buildings

Proposed Project	Project Size (ft ²)	dBA at 50 feet	dBA at 300 feet	dBA at 500 feet	dBA at 1,000 feet	dBA at 3,000 feet
Phase I Demolition (Bldgs. 697, 682, 685, 688, 689, 690, and 692)	18,451	88	73	68	62	52
Phase II Demolition (Bldgs. 948, 695, 696, 691, 693, 699, 701, 937, 938, 976, 1290, 1291, and 694)	54,981	89	74	69	64	54
Phase III Demolition (Bldgs. 683, 681, 684, and 808)	14,110	88	73	68	62	52
Total	87,542	89	74	69	64	54

Note: The noise levels were added together logarithmically, so noise levels cannot be added directly together.

Land Use. Long-term beneficial effects would be expected from demolition of the current BCE buildings. Demolition activities would have beneficial effects on the installation's organizational functions by removing old, outdated facilities and creating open space for future development. The demolition of these buildings, which are mostly industrial facilities, is anticipated to make land available for future development; compatible uses for future development would include industrial or administrative activities or open space. Buildings 1290 and 1291 have designated land uses of outdoor recreation. Demolition of these buildings would make land available likely for community uses or open space. Present and future land uses would be compatible.

Air Quality. Short-term minor adverse effects would be expected as a result of the demolition of the current BCE buildings. Demolition activities would result in air emissions from the operation of heavy machinery. Fugitive particulate matter would be minimized by continually spraying water over the demolition area. Demolition of these buildings would be expected to result in air emissions comparable to those indicated in **Table 4-6**.

McConnell AFB is in attainment for all criteria pollutants, so the General Conformity Rule does not apply. In addition, the criteria pollutants generated by the demolition of these buildings would not exceed 10 percent of the regional emissions values.

Safety. Short-term minor adverse effects would be expected from the demolition of the current BCE buildings as a result of the risks associated with construction-type activities. No long-term effects would be expected. Although all contractors are required to follow and implement OSHA standards to establish and maintain safety procedures, there would be an increased risk of accidents with increased demolition

Table 4-6. Expected Criteria Pollutant Emissions Resulting from Demolition of Current BCE Buildings

Proposed Project	Project Size (ft ²)	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO _x (tpy)	PM (tpy)
Phase I Demolition (Bldgs. 697, 682, 685, 688, 689, 690, and 692)	18,451	0.04	0.01	0.06	<0.01	0.5
Phase II Demolition (Bldgs. 948, 695, 696, 691, 693, 699, 701, 937, 938, 976, 1290, 1291, and 694)	54,981	0.1	0.02	0.16	<0.01	1.6
Phase III Demolition (Bldgs. 683, 681, 684, and 808)	14,110	0.03	0.01	0.04	<0.01	0.4
Total	87,542	0.2	0.03	0.3	<0.01	2.6
<i>10% of Regional Emissions Inventory</i>		3,088	3,520	19,336	835	8,528

activities. Construction workers could encounter contamination as a result of ACM or LBP. Demolition activities would be accomplished in accordance with Federal, state, and local regulations to minimize hazards associated with hazardous materials, wastes, and substances.

Geological Resources. Short-term adverse effects would be expected from grading, excavating, and grooming of the soil. Soils in the vicinity of the current BCE buildings have been heavily disturbed by previous activities. BMPs would be employed during demolition activities to minimize potentially adverse effects on soil and prevent soil and erosion runoff. All demolition activities would comply with the installation's SWPPP (MAFB 2004c) and employ erosion-control techniques such as silt-fencing, sediment traps, and application of water sprays. Disturbed areas would be revegetated with native vegetation, as necessary. Grading, excavation, and recontouring of soil materials would adhere to Federal, state, and local regulations.

Water Resources. The demolition of the current BCE buildings has the potential to result in minor adverse effects as a result of erosion and sedimentation associated with ground-disturbing activities. BMPs in accordance with the installation's SWPPP would be implemented, reducing the potential for adverse effects on surface water bodies. Any construction activity that disturbs 1 acre or more is required to file a NPDES permit application with KDHE for storm water runoff resulting from construction sites. McConnell AFB is committed to managing water resources in accordance with the installation's INRMP (MAFB 2004a); SWPPP (MAFB 2004c); and all applicable Federal, state, and local regulations and policies.

Biological Resources. The demolition of the current BCE buildings would not be expected to result in adverse effects on biological resources. The vicinity of these buildings is largely disturbed; there is minimal existing vegetation, no suitable habitat for wildlife, and no wetlands. Furthermore, there are no known Federal- or state-protected species that occur on McConnell AFB. Following demolition activities, the demolished areas would be revegetated with native landscape and maintained as mowed

areas until future development. McConnell AFB is committed to managing biological resources in accordance with the installation's INRMP (MAFB 2004a) and all applicable Federal, state, and local regulations and policies.

Cultural Resources. The demolition of the current BCE buildings would not be expected to result in adverse effects on cultural resources. There are no known archaeological sites or traditional cultural properties in the vicinity of this proposed demolition, and the area is heavily disturbed with low potential to yield intact resources in the future. Buildings 948, 695, 696, and 701 have been evaluated and determined not eligible for the NRHP. The remaining buildings were constructed in various years between 1965 and 2005. The demolition of buildings constructed in the post-Cold War era (Buildings 682, 685, 681, and 684) would not be expected to have adverse effects on cultural resources. McConnell AFB is committed to managing cultural resources according to the installation's ICRMP (MAFB 2004b) and all applicable Federal, state, and local regulations and policies.

Socioeconomics and Environmental Justice. Negligible effects on socioeconomic resources would be expected from the proposed demolition of the current BCE buildings. The demolition activities would provide temporary employment for contractors in the area. Demolition would occur entirely on McConnell AFB and have little potential to affect off-installation resources.

Infrastructure. Negligible effects on infrastructure resources would be expected from the demolition of the current BCE buildings. Removal of these facilities would result in less demand for certain utilities, but this demand would be offset by the construction of a new BCE Complex. This change in utility demand would be negligible when compared with total installation usage. Short-term adverse effects would be expected as a result of the generation of approximately 6,780 tons of demolition debris (USEPA 1998). This is a short-term adverse effect in that debris would only be generated during the demolition activities; however, debris that is not recycled would be landfilled, which would be considered a long-term irreversible adverse effect.

Hazardous Materials and Wastes. No long-term effects on hazardous materials management or hazardous waste generation would be expected as a result of the proposed demolition. However, because of their ages, most of these facilities should be assumed to contain both ACM and LBP. Sampling for ACM and LBP should occur prior to any demolition activities so that these materials can be properly characterized, handled, and disposed of in accordance with the McConnell AFB Asbestos Management and Operating Plan (22 CES/CEV 2003), Lead-Based Paint Management Plan (USAF, AMC 2003), and USAF policy.

The proposed demolition would not affect or be affected by ERP sites. If contamination is encountered, it would be handled, stored, transported, and disposed of in accordance with applicable Federal, state, and local regulations; AFIs; and McConnell AFB's Management Action Plan (MAFB 2005b).

4.4.2 Representative Construction Projects

4.4.2.1 Project C1. Construct BCE Complex

The proposed construction of the BCE complex would include three phases: the construction of a maintenance shop, covered shop, and hazardous storage during Phase I; construction of base civil engineering administration, engineering, environmental operations, and maintenance shops during Phase II; and construction of readiness, base contracting, and Explosive Ordnance Disposal (EOD) shops during Phase III. **Figure 2-2** shows the proposed general location of these three buildings, which would total approximately 136,500 ft², in the area now occupied by Buildings 1090 and 1091. The proposed BCE complex would replace older, outdated facilities proposed for demolition in **Section 4.4.1.3**. The

construction of pavements for the proposed BCE complex is analyzed as an infrastructure project in **Section 4.4.3**. There are no sensitive environmental or operational constraints in the vicinity of these proposed buildings (see **Figure 2-2**).

Noise. Short-term minor adverse effects would be expected as a result of the construction of the BCE complex. The noise emanating from the proposed construction area would be localized, short-term, and intermittent during operation of construction equipment. **Table 3-2** shows the predicted noise levels for various pieces of construction equipment operating at 50 feet from the source. Heavy construction equipment would not be operational during the entire construction period, which would limit the duration of increased noise levels. The proposed construction activities would be expected to result in noise levels comparable to those indicated in **Table 4-7**. This area of McConnell AFB is used for industrial activities; typical noise receptors would include USAF personnel working in civil engineer shops, supply facilities, transportation maintenance and operations facilities, and utility operations. Typical noise receptors would be approximately 500 feet from the source of the demolition noise; noise levels would be comparable to that of a very noisy urban residential area (see **Table 3-1**).

Table 4-7. Predicted Noise Levels Resulting from Construction of BCE Complex

Proposed Project	Project Size (ft ²)	dBA at 50 feet	dBA at 300 feet	dBA at 500 feet	dBA at 1,000 feet	dBA at 3,000 feet
Construct BCE Complex	136,500	92	87	72	67	57

Land Use. No effects on land use would be expected from the construction of the BCE complex. The proposed facilities would be constructed in the existing industrial land use category. The location of proposed facilities would be compatible with existing and future land use as identified in the McConnell AFB General Plan (MAFB 2005a).

Air Quality. Short-term minor adverse effects would be expected as a result of the construction of the proposed BCE complex. Construction activities would result in air emissions from the operation of heavy machinery. Fugitive particulate matter would be minimized by continually spraying water over the construction area during ground-disturbing activities. Construction of the BCE complex would be expected to result in air emissions comparable to those indicated in **Table 4-8**.

McConnell AFB is in attainment for all criteria pollutants, so the General Conformity Rule does not apply. In addition, the criteria pollutants generated by the construction of the BCE complex would not exceed 10 percent of the regional emissions values.

Table 4-8. Expected Criteria Pollutant Emissions Resulting from Construction of BCE Complex

Proposed Project	Project Size (ft ²)	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO _x (tpy)	PM (tpy)
Construct BCE Complex	136,500	2.5	0.7	2.9	0.1	4.1
<i>10% of Regional Emissions Inventory</i>		3,088	3,520	19,336	835	8,528

Safety. Short-term minor adverse effects on safety would be expected as a result of increased risk associated with construction-type activities. No long-term effects would be expected. Although all contractors are required to follow and implement OSHA standards to establish and maintain safety

procedures, there would be an increased risk of accidents. Construction activities would be accomplished only in accordance with Federal, state, and local regulations to minimize hazards associated with hazardous materials, wastes, and substances.

Geological Resources. Short-term adverse effects would be expected from grading, excavating, and grooming of the soil. Soils in the vicinity of the proposed construction site have been heavily disturbed by previous activities; currently, the site proposed for construction is impervious pavement and structures. Prior to construction, those impervious surfaces would be removed (see **Section 4.4.1.1**) and prepared for the construction of the BCE complex. BMPs would be employed during demolition activities to minimize potentially adverse effects on soil and prevent soil and erosion runoff. All construction activities would comply with the installation's SWPPP (MAFB 2004c) and employ erosion-control techniques such as silt-fencing, sediment traps, and application of water sprays. Disturbed areas would be revegetated with native vegetation, as necessary. Grading, excavation, and recontouring of soil materials would adhere to Federal, state, and local regulations.

Water Resources. Short-term minor adverse effects could occur from grading, excavating, and grooming of the soil and use of hazardous materials during construction. These activities have the potential to result in runoff from the construction site into receiving water bodies. Any construction activity that disturbs 1 acre or more is required to file a NPDES permit application with KDHE for storm water runoff resulting from construction sites. The proposed construction of the BCE complex would require a NPDES construction permit, so development of a site-specific SWPPP with BMPs to reduce site runoff would be required. All construction activities would comply with the site-specific SWPPP and the installation's Spill Prevention Control and Countermeasures Plan to minimize the potential for adverse effects on surface water bodies.

Long-term minor adverse effects would be expected on water resources. The proposed BCE complex would add approximately 124,500 ft² of impervious surfaces though the net increase would be approximately 54,500 ft² of impervious surfaces when the demolition of the existing BCE facilities are accounted (70,000 ft², see **Section 4.4.1.3**). The area proposed for construction is largely impervious and heavily disturbed. Any modifications to the conditions addressed in the current NPDES permit, which could include increased flows or new outfalls, should be coordinated early with KDHE.

McConnell AFB is committed to managing water resources in accordance with the installation's INRMP (MAFB 2004a); SWPPP (MAFB 2004c); and all applicable Federal, state, and local regulations and policy.

Biological Resources. The construction of the BCE complex would not be expected to result in adverse effects on biological resources. The vicinity of the proposed construction is heavily disturbed; there is minimal existing vegetation, no suitable habitat for wildlife, and no wetlands. Furthermore, there are no known Federal- or state-protected species that occur on McConnell AFB. McConnell AFB is committed to managing biological resources in accordance with the installation's INRMP (MAFB 2004a) and all applicable Federal, state, and local regulations and policy.

Cultural Resources. The construction of the BCE complex would not be expected to result in adverse effects on cultural resources. There are no known archaeological sites or traditional cultural properties in the vicinity of this proposed construction, and the area is heavily disturbed with low potential to yield intact resources in the future. There are no historically significant or NRHP-eligible structures in the vicinity of the proposed project. McConnell AFB is committed to managing cultural resources according to the installation's ICRMP (MAFB 2004b) and all applicable Federal, state, and local regulations and policy.

Socioeconomics and Environmental Justice. Negligible effects on socioeconomic resources would be expected from the proposed construction of the BCE complex. The construction activities would provide temporary employment for contractors in the area. Construction would occur entirely on McConnell AFB and have little potential to affect off-installation resources.

Infrastructure. Overall, negligible effects on infrastructure resources would be expected from the construction of the proposed BCE complex. The increased demand for utility services, such as water supply, electricity, natural gas, and sanitary sewer, would be offset by the demolition of the current BCE facilities. This change in utility demand would be negligible when compared with total installation usage. Short-term adverse effects would be expected as a result of the generation of approximately 300 tons of construction debris (USEPA 1998). This is a short-term adverse effect in that debris would only be generated during construction activities; however, debris that is not recycled would be landfilled, which would be considered a long-term irreversible adverse effect. Construction debris is generally composed of clean materials, and most of this waste would be recycled or ground into gravel for reuse.

Hazardous Materials and Wastes. Short-term minor adverse effects would be expected from the use of hazardous materials during the construction process. The proposed BCE complex would include the construction of a hazardous storage area. However, it is not anticipated that the proposed BCE complex would result in new waste streams. Storage facilities would comply with AFI 91-119, *Process Safety Management of Highly Hazardous Chemicals*; USAF Occupational Safety and Health Standards 91-68, *Chemical Safety*; AFI 90-821, *Hazardous Communication*; and McConnell AFB Instruction 32-2003, *Fire Prevention*. McConnell AFB is committed to managing hazardous materials and wastes according to the installation's Hazardous Materials Management Plan (MAFB 2006c); Hazardous Waste Management Plan; and all applicable Federal, state, and local regulations and policies.

4.4.2.2 Project C2. Construct Forward Logistics Center (Building 1169)

The proposed forward logistics center would include interior renovations and an addition of approximately 10,000 ft². The interior renovations would accommodate a deployment processing center, base supply and warehouse, base supply administration, and a traffic management office. The addition would accommodate additional logistics office space, a recycling center, and hazardous materials storage. This project includes the demolition of Building 1090 (analyzed in **Section 4.4.1.1**). As shown in **Figure 2-2**, there is an ERP site at this proposed site (see **Figure 2-2**).

Noise. Short-term minor adverse effects would be expected as a result of the modifications to Building 1169 to accommodate the forward logistics center. The noise emanating from the proposed construction area would be localized, short-term, and intermittent during operation of construction equipment. **Table 3-2** shows the predicted noise levels for various pieces of construction equipment operating at 50 feet from the source. Heavy construction equipment would not be operational during the entire construction period, which would limit the duration of increased noise levels. The proposed construction activities would be expected to result in noise levels comparable to those indicated in **Table 4-9**. This area of McConnell AFB is used for aircraft operations and maintenance activities; typical noise receptors would include USAF personnel involved in flying operations and aircraft maintenance. Typical noise receptors would be approximately 500 feet from the source of the construction noise; noise levels would be comparable to that of a very noisy urban residential area (see **Table 3-1**).

Land Use. No effects on land use would be expected from the construction of the forward logistics center. The proposed facility would be constructed in the existing aircraft operations and maintenance land use category. The proposed facility would be compatible with existing and future land use as identified in the McConnell AFB General Plan (MAFB 2005a).

Table 4-9. Predicted Noise Levels Resulting from Construction of Forward Logistics Center

Proposed Project	Project Size (ft ²)	dBA at 50 feet	dBA at 300 feet	dBA at 500 feet	dBA at 1,000 feet	dBA at 3,000 feet
Construct Forward Logistics Center	10,000	88	73	68	62	52

Air Quality. Short-term minor adverse effects would be expected as a result of the construction of the proposed forward logistics center. Construction activities would result in air emissions from the operation of heavy machinery. Fugitive particulate matter would be minimized by continually spraying water over the construction area. Construction of the forward logistics center would be expected to result in air emissions comparable to those indicated in **Table 4-10**.

McConnell AFB is in attainment for all criteria pollutants, so the General Conformity Rule does not apply. In addition, the criteria pollutants generated by the construction of the forward logistics center would not exceed 10 percent of the regional emissions values.

Table 4-10. Expected Criteria Pollutant Emissions Resulting from Construction of Forward Logistics Center

Proposed Project	Project Size (ft ²)	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO _x (tpy)	PM (tpy)
Construct Forward Logistics Center	10,000	0.2	0.1	0.2	0.01	0.3
<i>10% of Regional Emissions Inventory</i>		3,088	3,520	19,336	835	8,528

Safety. Short-term minor adverse effects on safety would be expected as a result of increased risk associated with construction-type activities. No long-term effects would be expected. Although all contractors are required to follow and implement OSHA standards to establish and maintain safety procedures, there would be an increased risk of accidents. Construction workers could encounter contamination as a result of an ERP site. These hazards are discussed in more detail in the subsection addressing *Hazardous Materials and Wastes*. Construction activities would be accomplished only in accordance with Federal, state, and local regulations to minimize hazards associated with hazardous materials, wastes, and substances.

Geological Resources. Short-term adverse effects would be expected from grading, excavating, and grooming of the soil. Soils in the vicinity of the proposed construction site have been heavily disturbed by previous activities. BMPs would be employed during construction activities to minimize potentially adverse effects on soil and prevent soil and erosion runoff. All construction activities would comply with the installation's SWPPP (MAFB 2004c) and employ erosion-control techniques such as silt-fencing, sediment traps, and application of water sprays. Disturbed areas would be revegetated with native vegetation, as necessary. Grading, excavation, and recontouring of soil materials would adhere to Federal, state, and local regulations.

Water Resources. Short-term minor adverse effects could occur from grading, excavating, and grooming of the soil and use of hazardous materials during construction. These activities have the potential to result in runoff from the construction site into receiving water bodies. All construction activities would comply

with the installation's Spill Prevention Control and Countermeasures Plan to minimize the potential for adverse effects on surface water bodies.

Long-term minor adverse effects would be expected on water resources. The proposed forward logistics center would add an additional 10,000 ft² of impervious surfaces. This area of the McConnell AFB is already largely impervious. Any modifications to the conditions addressed in the current NPDES permit, which could include increased flows or new outfalls, should be coordinated early with KDHE.

McConnell AFB is committed to managing water resources in accordance with the installation's INRMP (MAFB 2004a); SWPPP (MAFB 2004c); and all applicable Federal, state, and local regulations and policies.

Biological Resources. The construction of the forward logistics center would not be expected to result in adverse effects on biological resources. The vicinity of the proposed construction is heavily disturbed; there is minimal existing vegetation, no suitable habitat for wildlife, and no wetlands. Furthermore, there are no known Federal- or state-protected species that occur on McConnell AFB. McConnell AFB is committed to managing biological resources in accordance with the installation's INRMP (MAFB 2004a) and all applicable Federal, state, and local regulations and policies.

Cultural Resources. The construction of the forward logistics center would not be expected to result in adverse effects on cultural resources. There are no known archaeological sites or traditional cultural properties in the vicinity of this proposed construction, and the area is heavily disturbed with low potential to yield intact resources in the future. There are no historically significant or NRHP-eligible structures in the vicinity of the proposed project. McConnell AFB is committed to managing cultural resources according to the installation's ICRMP (MAFB 2004b) and all applicable Federal, state, and local regulations and policy.

Socioeconomics and Environmental Justice. Negligible effects on socioeconomic resources would be expected from the proposed construction of the forward logistics center. The construction activities would provide temporary employment for contractors in the area. Construction would occur entirely on McConnell AFB and have little potential to affect off-installation resources.

Infrastructure. Overall, negligible effects on infrastructure resources would be expected from the construction of the proposed forward logistics center. The increased demand for utility services, such as water supply, electricity, natural gas, and sanitary sewer, would be negligible when compared with total installation usage. Short-term adverse effects would be expected as a result of the generation of approximately 22 tons of construction debris (USEPA 1998). This is a short-term adverse effect in that debris would only be generated during the construction activities; however, debris that is not recycled would be landfilled, which would be considered a long-term irreversible adverse effect. Construction debris is generally composed of clean materials, and most of this waste would be recycled or ground into gravel for reuse.

Hazardous Materials and Wastes. Short-term minor adverse effects would be expected from the use of hazardous materials during the construction process. The proposed forward logistics center would include the construction of a hazardous materials storage shed. However, it is not anticipated that this facility would result in new waste streams. Storage facilities would comply with AFI 91-119, *Process Safety Management of Highly Hazardous Chemicals*; USAF Occupational Safety and Health Standards 91-68, *Chemical Safety*; AFI 90-821, *Hazardous Communication*; and McConnell AFB Instruction 32-2003, *Fire Prevention*. McConnell AFB is committed to managing hazardous materials and wastes according to the installation's Hazardous Materials Management Plan (MAFB 2006c); Hazardous Waste Management Plan; and all applicable Federal, state, and local regulations and policies.

The forward logistics center is proposed in an ERP site (see **Figure 2-2**). There is the potential for construction workers to encounter contamination during groundbreaking activities. HAZWOPER regulations that protect workers and the public at or near a hazardous waste clean-up site are discussed in 29 CFR 1910.120 and 29 CFR Part 1926. If contamination is encountered, it would be handled, stored, transported, and disposed of in accordance with applicable Federal, state, and local regulations; AFIs; and McConnell AFB's Management Action Plan (MAFB 2005b). Any proposed project that has the potential to interfere with an ERP site must be coordinated on an individual basis with KDHE and USEPA. A letter from KDHE is included in **Appendix C** in response to the Draft EA. The 22 CES/CEV would review all project design and construction plans and coordinate with KDHE and USEPA as appropriate.

4.4.2.3 Project C3. STAMP/STRAPP Relocation

This project would include the relocation of the Standard Air Munitions Package (STAMP) and Standard Tank, Rack, Adapter, and Pylon Package (STRAPP) missions from Lackland AFB Medina Annex in San Antonio, Texas (an active-duty mission) to McConnell AFB (KANG mission) as a result of BRAC. The STAMP mission would include the construction of 16 earth-covered magazines (ECMs), 10 miniature ECMs, two inert storage facilities, a munitions maintenance operating facility, and a government-owned vehicle parking shed which would total approximately 53,550 ft². The STRAPP mission would include the construction of a STRAPP storage/assembly area, covered loading dock, administration area, air freight processing area, and battery shop which would total approximately 51,600 ft². The proposed locations for the STAMP/STRAPP missions are shown in **Figure 2-2**. These locations are within the existing QD arcs; this fact is essential for McConnell AFB to accommodate this new munitions mission. There are several ERP sites within the munitions storage area; the proposed STRAPP building is proposed on an ERP site.

The STAMP/STRAPP relocation would also require the construction of pavements, which is analyzed as an infrastructure project in **Section 4.4.3**. Demolition of Building 1404 (D11) would also be required to support the STAMP mission, which is presented in **Section 4.4.4**. The installation of alarm systems and upgrades to lighting systems, storm drainage, and communications would also be required, but these actions are not analyzed in detail because they could be categorically excluded from detailed analysis based on the USAF's approved list found in 32 CFR Part 989 Appendix B.

Noise. Short-term minor adverse effects would be expected as a result of the proposed STAMP/STRAPP construction. The noise emanating from the proposed construction area would be localized, short-term, and intermittent during operation of construction equipment. **Table 3-2** shows the predicted noise levels for various pieces of construction equipment operating at 50 feet from the source. Heavy construction equipment would not be operational during the entire construction period, which would limit the duration of increased noise levels. The proposed construction activities would be expected to result in noise levels comparable to those indicated in **Table 4-11**. This area of McConnell AFB is used for munitions storage and considered an industrial land use; typical noise receptors would include USAF personnel loading, sorting, transporting, or maintaining munitions. These kinds of munitions activities would not occur during active construction for safety reasons, reducing the potential for adverse construction noise effects.

Land Use. No effects on land use would be expected from the STAMP/STRAPP relocation. The proposed facilities would be constructed in the existing munitions storage area, which is a compatible use. The proposed STAMP/STRAPP relocation could indirectly result in incompatible land uses if the QD arcs expand and encroach on noncompatible uses. As shown in **Figure 2-2**, the area west of the munitions storage area is airfield, so no adverse effects on the airfield would be expected. However, the golf course is to the east of the munitions storage area and some of the security forces training areas and arms ranges are to the southeast. The configuration of the proposed ECMs would have to be in such a way to prevent QD arcs from encroaching on inhabited areas or recreational areas.

Table 4-11. Predicted Noise Levels Resulting from Construction Associated with STAMP/STRAPP Relocation

Proposed Project	Project Size (ft ²)	dBA at 50 feet	dBA at 300 feet	dBA at 500 feet	dBA at 1,000 feet	dBA at 3,000 feet
Construct STAMP Facilities	53,550	88	74	70	65	55
Construct STRAPP Facilities	51,600	88	74	70	65	55
Total	105,150	91	87	71	67	57

Note: The noise levels were added together logarithmically, so noise levels cannot be added directly together.

Air Quality. Short-term minor adverse effects would be expected as a result of the construction of the proposed STAMP/STRAPP facilities. Construction activities would result in air emissions from the operation of heavy machinery. Fugitive particulate matter would be minimized by continually spraying water over the construction area during ground-disturbing activities. Construction of the proposed STAMP/STRAPP facilities would be expected to result in air emissions comparable to those indicated in **Table 4-12**.

McConnell AFB is in attainment for all criteria pollutants, so the General Conformity Rule does not apply. In addition, the criteria pollutants generated by the construction of the proposed STAMP/STRAPP facilities would not exceed 10 percent of the regional emissions values.

Table 4-12. Expected Criteria Pollutant Emissions Resulting from Construction Associated with STAMP/STRAPP Relocation

Proposed Project	Project Size (ft ²)	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO _x (tpy)	PM (tpy)
Construct STAMP Facilities	53,550	1.0	0.3	1.1	0.03	1.6
Construct STRAPP Facilities	51,600	0.9	0.3	1.1	0.03	1.5
Total	105,150	1.9	0.6	2.2	0.06	3.2
<i>10% of Regional Emissions Inventory</i>		3,088	3,520	19,336	835	8,528

Safety. Short-term minor adverse effects on safety would be expected as a result of increased risk associated with construction-type activities. Although all contractors are required to follow and implement OSHA standards to establish and maintain safety procedures, there would be an increased risk of accidents. Construction workers would be working in a munitions storage area; no transport of munitions would occur while construction workers are present. There is a possibility of encountering UXO during ground-breaking activities. The McConnell AFB EOD team would be onsite during construction in the event that UXO is encountered so it can be handled and disposed of appropriately. Construction activities would be accomplished only in accordance with Federal, state, and local regulations to minimize hazards associated with hazardous materials, wastes, and substances.

The STAMP/STRAPP construction would provide new ECMs and munitions storage and handling facilities that are capable of storing a substantially higher net explosive weight of munitions over the

current condition. The ECMs and munitions storage and handling facilities would be constructed to ensure adequate explosion safety for the amount of net explosive weight to be stored in each facility. ECMs would be configured in such a way to ensure that QD arcs do not encroach further into the golf course or the buildings to the southeast of the munitions storage area. The existing QD arcs associated with the new STAMP/STRAPP mission would fit within the existing arcs, shown in **Figure 2-2**.

Geological Resources. Short-term adverse effects would be expected from grading, excavating, and grooming of the soil. BMPs would be employed during construction activities to minimize potentially adverse effects on soil and prevent soil and erosion runoff. All construction activities would comply with the installation's SWPPP (MAFB 2004c) and employ erosion-control techniques such as silt-fencing, sediment traps, and application of water sprays. Disturbed areas would be revegetated with native vegetation, as necessary. Grading, excavation, and recontouring of soil materials would adhere to Federal, state, and local regulations.

Water Resources. Short-term minor adverse effects could occur from grading, excavating, and grooming of the soil and use of hazardous materials during construction. These activities have the potential to result in runoff from the construction site into receiving water bodies. The proposed construction of the STAMP/STRAPP facilities would require a NPDES construction permit because the total area disturbed is greater than 1 acre for the entire project, so development of a site-specific SWPPP with BMPs to reduce site runoff would be required. All construction activities would comply with the site-specific SWPPP and the installation's Spill Prevention Control and Countermeasures Plan to minimize the potential for adverse effects on surface water bodies.

Long-term minor adverse effects would be expected on water resources. The proposed STAMP/STRAPP facilities would add an additional 105,150 ft² of impervious surfaces. Improvements to the storm water system in this area of the installation would be required. Any modifications to the conditions addressed in the current NPDES permit, which could include increased flows or new outfalls, should be coordinated early with KDHE.

McConnell AFB is committed to managing water resources in accordance with the installation's INRMP (MAFB 2004a); SWPPP (MAFB 2004c); and all applicable Federal, state, and local regulations and policies.

Biological Resources. The construction of the STAMP/STRAPP facilities would not be expected to result in adverse effects on biological resources. The proposed construction would remove some vegetation, mostly maintained grass. This area is not particularly suited to wildlife, and construction noise would add only marginally to the increased noise environment. There are no wetlands in the vicinity of the proposed construction, and there are no known Federal- or state-protected species that occur on McConnell AFB. McConnell AFB is committed to managing biological resources in accordance with the installation's INRMP (MAFB 2004a) and all applicable Federal, state, and local regulations and policies.

Cultural Resources. The construction of the STAMP/STRAPP facilities would not be expected to result in adverse effects on cultural resources. There are no known archaeological sites or traditional cultural properties in the vicinity of this proposed demolition, and the area is heavily disturbed with low potential to yield intact resources in the future. There are no historically significant or NRHP-eligible structures in the vicinity of the proposed project. McConnell AFB is committed to managing cultural resources according to the installation's ICRMP (MAFB 2004b) and all applicable Federal, state, and local regulations and policies.

Socioeconomics and Environmental Justice. Negligible effects on socioeconomic resources would be expected from the proposed STAMP/STRAPP relocation. The construction activities would provide temporary employment for contractors in the area. Construction would occur entirely on McConnell AFB and have little potential to affect off-installation resources.

Infrastructure. Overall, negligible effects on infrastructure resources would be expected from the construction of the proposed STAMP/STRAPP facilities. These munitions facilities would largely be uninhabited, so only a minor increase in utility demand would be expected. This change in demand would be negligible compared with total installation usage. The facilities would require upgrades to alarm, storm drainage, and communications systems, which would result in long-term beneficial effects on the infrastructure systems. Since McConnell AFB continually provides upgrades to infrastructure systems, these upgrades would be beneficial but negligible compared with the continuous upgrades. Using empirical formulas, construction activities could generate as much as 230 tons of debris (USEPA 1998). In reality, ECMs are typically prefabricated structures, which would minimize the amount of construction waste that is generated. Generated construction debris would be recycled to the maximum extent practicable, and the remainder would be landfilled.

Hazardous Materials and Wastes. Short-term minor adverse effects would be expected from the use of hazardous materials during the construction process. Operations of the new STAMP/STRAPP facilities would not be expected to generate new waste streams, so no modifications to McConnell AFB's permits or hazardous materials or wastes management would be expected. McConnell AFB is committed to managing hazardous materials and wastes according to the installation's Hazardous Materials Management Plan (MAFB 2006c); Hazardous Waste Management Plan; and all applicable Federal, state, and local regulations and policies.

The proposed STRAPP building is proposed in an ERP site (see **Figure 2-2**). There is the potential for construction workers to encounter contamination during groundbreaking activities. HAZWOPER regulations that protect workers and the public at or near a hazardous waste clean-up site are discussed in 29 CFR 1910.120 and 29 CFR Part 1926. If contamination is encountered, it would be handled, stored, transported, and disposed of in accordance with applicable Federal, state, and local regulations; AFIs; and McConnell AFB's Management Action Plan (MAFB 2005b). Any proposed project that has the potential to interfere with an ERP site must be coordinated on an individual basis with KDHE and USEPA. A letter from KDHE is included in **Appendix C** in response to the Draft EA. The 22 CES/CEV would review all project design and construction plans and coordinate with KDHE and USEPA as appropriate.

4.4.2.4 Project C4. Construction Corrosion Control Facility

The proposed corrosion control facility would provide necessary aircraft washing, preparation of surfaces, and painting for the fleet of KC-135 aircraft at McConnell AFB but with the capability to support any USAF aircraft. Corrosion control is currently accomplished inefficiently in three separate facilities that double for other functions. This project would include the construction of a corrosion control hangar with an integrated structural metal shop totaling approximately 51,000 ft². The demolition of two facilities, Buildings 1102 and 1128 (D5), would be necessary to construct the proposed corrosion control facility; demolition activities are presented in tabular form in **Section 4.4.4**. The construction of the corrosion control facility is proposed near an NRHP-eligible hangar (see **Figure 2-2**).

Noise. Short-term minor adverse effects would be expected as a result of the construction of the corrosion control facility. The noise emanating from the proposed construction area would be localized, short-term, and intermittent during operation of construction equipment. **Table 3-2** shows the predicted noise levels for various pieces of construction equipment operating at 50 feet from the source. Heavy construction equipment would not be operational during the entire construction period, which would limit

the duration of increased noise levels. The proposed construction activities would be expected to result in noise levels comparable to those indicated in **Table 4-13**. This area of McConnell AFB is used for aircraft operations and maintenance activities; typical noise receptors would include USAF personnel involved in flying operations and aircraft maintenance, and possibly passenger and freight terminal facilities. Typical noise receptors would be approximately 500 feet from the source of the construction noise; noise levels would be comparable to that of a very noisy urban residential area (see **Table 3-1**).

Table 4-13. Predicted Noise Levels Resulting from Construction of Corrosion Control Facility

Proposed Project	Project Size (ft ²)	dBA at 50 feet	dBA at 300 feet	dBA at 500 feet	dBA at 1,000 feet	dBA at 3,000 feet
Construct Corrosion Control Facility	51,000	89	74	69	64	54

Land Use. No effects on land use would be expected from the construction of the corrosion control facility. The proposed facilities would be constructed in the existing aircraft operations and maintenance land use category. The location of the proposed facility would be compatible with existing and future land use as identified in the McConnell AFB General Plan (MAFB 2005a).

Air Quality. Short-term minor adverse effects would be expected as a result of the construction of the proposed corrosion control facility. Construction activities would result in air emissions from the operation of heavy machinery. Fugitive particulate matter would be minimized by continually spraying water over the construction area during ground-disturbing activities. Construction of the corrosion control facility would be expected to result in air emissions comparable to those indicated in **Table 4-14**.

Long-term minor adverse effects would be expected as a result of preparation of surfaces and painting operations in the proposed corrosion control facility. VOC emissions from surface coating operations would include enamel, lacquer, primer, paint, thinner, and varnish. HAP emissions would include xylene, benzene, ethyl benzene, methanol, trichloroethylene, toluene, and others. The proposed corrosion control facility would be constructed with state-of-the-art paint booth and air emissions control equipment, such as overspray filters, magnehelic pressure gauges, and high-volume low-pressure paint guns. The proposed corrosion control facility would not introduce new VOC or HAP. The emissions resulting from this facility would fit within the existing air operating permit.

McConnell AFB is in attainment for all criteria pollutants, so the General Conformity Rule does not apply. In addition, the criteria pollutants generated by the construction and operation of the corrosion control facility would not exceed 10 percent of the regional emissions values in a calendar year.

Table 4-14. Expected Criteria Pollutant Emissions Resulting from Construction of Corrosion Control Facility

Proposed Project	Project Size (ft ²)	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO _x (tpy)	PM (tpy)
Construct Corrosion Control Facility	51,000	0.9	0.3	1.1	0.03	1.5
<i>10% of Regional Emissions Inventory</i>		3,088	3,520	19,336	835	8,528

Safety. Short-term minor adverse effects on safety would be expected as a result of increased risk associated with construction-type activities. Although all contractors are required to follow and

implement OSHA standards to establish and maintain safety procedures, there would be an increased risk of accidents. Construction activities would be accomplished only in accordance with Federal, state, and local regulations to minimize hazards associated with hazardous materials, wastes, and substances.

Geological Resources. Short-term adverse effects would be expected from grading, excavating, and grooming of the soil. Soils in the vicinity of the proposed construction site have been heavily disturbed by previous activities. BMPs would be employed during construction activities to minimize potentially adverse effects on soil and prevent soil and erosion runoff. All construction activities would comply with the installation's SWPPP (MAFB 2004c) and employ erosion-control techniques such as silt-fencing, sediment traps, and application of water sprays. Disturbed areas would be revegetated with native vegetation, as necessary. Grading, excavation, and recontouring of soil materials would adhere to Federal, state, and local regulations.

Water Resources. Short-term minor adverse effects could occur from grading, excavating, and grooming of the soil and use of hazardous materials during construction. These activities have the potential to result in runoff from the construction site into receiving water bodies. Any construction activity that disturbs 1 acre or more is required to file a NPDES permit application with KDHE for storm water runoff resulting from construction sites. The proposed construction of the corrosion control facility would require a NPDES construction permit, so development of a site-specific SWPPP with specific BMPs to reduce site runoff would be required. All construction activities would comply with the site-specific SWPPP and the installation's Spill Prevention Control and Countermeasures Plan to minimize the potential for adverse effects on surface water bodies.

Long-term minor adverse effects would be expected on water resources. The proposed corrosion control facility would add an additional 51,000 ft² of impervious surfaces. This area of the McConnell AFB is already largely impervious. Any modifications to the conditions addressed in the current NPDES permit, which could include increased flows or new outfalls, should be coordinated early with KDHE.

McConnell AFB is committed to managing water resources in accordance with the installation's INRMP (MAFB 2004a); SWPPP (MAFB 2004c); and all applicable Federal, state, and local regulations and policies.

Biological Resources. The construction of the corrosion control facility would not be expected to result in adverse effects on biological resources. The vicinity of the proposed construction is heavily disturbed; there is minimal existing vegetation, no suitable habitat for wildlife, and no wetlands. Furthermore, there are no known Federal- or state-protected species that occur on McConnell AFB. McConnell AFB is committed to managing biological resources in accordance with the installation's INRMP (MAFB 2004a) and all applicable Federal, state, and local regulations and policies.

Cultural Resources. The construction of the corrosion control facility would not be expected to result in adverse effects on cultural resources. There are no known archaeological sites or traditional cultural properties in the vicinity of this proposed demolition, and the area is heavily disturbed with low potential to yield intact resources in the future. Building 1106, an NRHP-eligible hangar, would be near to the proposed corrosion control facility. It is not anticipated that the construction of the new corrosion control facility would affect the historical integrity, qualities, or feel of Building 1106, nor would it affect the viewshed since the area around Building 1106 has been modified since its construction. The Cultural Resources Manager at McConnell AFB would consult with the SHPO prior to construction in accordance with Section 106 of the NHPA. McConnell AFB is committed to managing cultural resources according to the installation's ICRMP (MAFB 2004b) and all applicable Federal, state, and local regulations and policies.

Socioeconomics and Environmental Justice. Negligible effects on socioeconomic resources would be expected from the proposed construction of the corrosion control facility. The construction activities would provide temporary employment for contractors in the area. Construction would occur entirely on McConnell AFB and have little potential to affect off-installation resources.

Infrastructure. Overall, negligible effects on infrastructure resources would be expected from the construction of the proposed corrosion control facility. The increased demand for utility services, such as water supply, electricity, natural gas, and sanitary sewer, would be negligible when compared with total installation usage. Short-term adverse effects would be expected as a result of the generation of approximately 112 tons of construction debris (USEPA 1998). This is a short-term adverse effect in that debris would only be generated during the construction activities; however, debris that is not recycled would be landfilled, which would be considered a long-term irreversible adverse effect. Construction debris is generally composed of clean materials, and most of this waste would be recycled or ground into gravel for reuse.

Hazardous Materials and Wastes. Short-term minor adverse effects would be expected from the use of hazardous materials during the construction process. The proposed corrosion control facility would include storage of VOC and other hazardous materials. However, it is not anticipated that the proposed corrosion control facility would result in new waste streams. Storage facilities would comply with AFI 91-119, *Process Safety Management of Highly Hazardous Chemicals*; USAF Occupational Safety and Health Standards 91-68, *Chemical Safety*; AFI 90-821, *Hazardous Communication*; and McConnell AFB Instruction 32-2003, *Fire Prevention*. McConnell AFB is committed to managing hazardous materials and wastes according to the installation's Hazardous Materials Management Plan (MAFB 2006c); Hazardous Waste Management Plan; and all applicable Federal, state, and local regulations and policies.

4.4.3 Representative Infrastructure Projects

4.4.3.1 Project I1. Construct Pavements for BCE Complex

The proposed BCE complex would require the construction of new pavements, parking, and sidewalks (379,200 ft²) near the new facilities, which are analyzed in **Section 4.4.2.1**. It is anticipated that new pavements would be added as necessary over three phases of construction. As shown in **Figure 2-2**, there are no sensitive environmental or operational constraints in the area proposed for pavement construction.

Noise. Short-term minor adverse effects on noise levels would be expected as a result of the construction of pavements. The noise emanating from this proposed infrastructure project would occur in multiple phases; noise levels would be localized and intermittent during operation of construction equipment and machinery. **Table 3-2** shows the predicted noise levels for various pieces of construction equipment operating at 50 feet from the source. Heavy construction equipment would not be operational during the entire construction period, which would limit the duration of increased noise levels. The construction of pavement would be expected to result in noise levels comparable to those indicated in **Table 4-15**. This area of McConnell AFB is used for industrial activities; typical noise receptors would include USAF personnel working in civil engineer shops, supply facilities, transportation maintenance and operations facilities, and utility operations. Typical noise receptors would be approximately 500 feet from the source of the noise; noise levels would be comparable to that of a very noisy urban residential area (see **Table 3-1**).

Land Use. No effects on land use would be expected from the construction of a parking area. The proposed pavement, parking, and sidewalks would be compatible with existing and future land uses.

Table 4-15. Predicted Noise Levels Resulting from Construction of Proposed BCE Pavements

Proposed Project	Project Size (ft ²)	dBA at 50 feet	dBA at 300 feet	dBA at 500 feet	dBA at 1,000 feet	dBA at 3,000 feet
Construct pavements, parking, and sidewalk for BCE Complex	379,200	92	87	72	67	57

Air Quality. Short-term minor adverse effects would be expected as a result of pavement construction activities. These activities would result in air emissions from the operation of heavy machinery. Fugitive particulate matter would be minimized by continually spraying water over the construction areas during ground-disturbing activities. The proposed construction of pavements would be expected to result in air emissions comparable to those indicated in **Table 4-16**.

McConnell AFB is in attainment for all criteria pollutants, so the General Conformity Rule does not apply. In addition, the criteria pollutants generated by this project would not exceed 10 percent of the regional emissions values.

Table 4-16. Expected Criteria Pollutant Emissions Resulting from Construction of Proposed BCE Pavements

Proposed Project	Project Size (ft ²)	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO _x (tpy)	PM (tpy)
Construct pavements, parking, and sidewalk for BCE Complex	379,200	0.7	0.06	0.5	0.01	11.1
10% of Regional Emissions Inventory	3,088	3,520	19,336	835	8,528	

Safety. Short-term minor adverse effects would be expected as a result of the risks associated with construction-type activities. No long-term effects would be expected. Although all contractors are required to follow and implement OSHA standards to establish and maintain safety procedures, there would be an increased risk of accidents. Construction activities would be accomplished in accordance with Federal, state, and local regulations to minimize hazards associated with hazardous materials, wastes, and substances.

Geological Resources. Short-term adverse effects would be expected from grading, excavating, and grooming of the soil. Soils in the areas around the area for proposed pavements construction have been heavily disturbed by previous activities. BMPs would be employed during all construction activities to minimize potentially adverse effects on soil and prevent soil and erosion runoff. All activities would comply with the installation's SWPPP (MAFB 2004c) and employ erosion-control techniques such as silt-fencing, sediment traps, and application of water sprays. Disturbed areas would be revegetated with native vegetation, as necessary. Grading, excavation, and recontouring of soil materials would adhere to Federal, state, and local regulations.

Water Resources. Short-term minor adverse effects could occur from grading, excavating, and grooming of the soil and use of hazardous materials during construction. These activities have the potential to result in runoff from the construction site into receiving water bodies. Any construction activity that disturbs

1 acre or more is required to file a NPDES permit application with KDHE for storm water runoff resulting from construction sites. The proposed construction of the BCE complex (see **Section 4.4.2.1**) and associated pavements would require a NPDES construction permit, so development of a site-specific SWPPP with BMPs to reduce site runoff would be required. All construction activities would comply with the site-specific SWPPP and the installation's Spill Prevention Control and Countermeasures Plan to minimize the potential for adverse effects on surface water bodies.

Long-term minor adverse effects would be expected on water resources. The proposed construction of pavements for the BCE complex would add an additional 379,200 ft² of impervious surfaces. This area of the McConnell AFB is largely impervious and heavily disturbed. Any modifications to the conditions addressed in the current NPDES permit, which could include increased flows or new outfalls, should be coordinated early with KDHE.

McConnell AFB is committed to managing water resources in accordance with the installation's INRMP (MAFB 2004a); SWPPP (MAFB 2004c); and all applicable Federal, state, and local regulations and policies.

Biological Resources. The proposed pavement construction would not be expected to result in adverse effects on biological resources. The area of proposed pavement construction activities is largely disturbed; there is minimal existing vegetation, no suitable habitat for wildlife, and no wetlands. Furthermore, there are no known Federal- or state-protected species that occur on McConnell AFB. McConnell AFB is committed to managing biological resources in accordance with the installation's INRMP (MAFB 2004a) and all applicable Federal, state, and local regulations and policies.

Cultural Resources. The proposed pavement construction would not be expected to result in adverse effects on cultural resources. There are no known archaeological sites or traditional cultural properties in the vicinity of this proposed project, and the area is heavily disturbed with low potential to yield intact resources in the future. There are no historically significant or NRHP-eligible structures in the vicinity of the proposed project. McConnell AFB is committed to managing cultural resources according to the installation's ICRMP (MAFB 2004b) and all applicable Federal, state, and local regulations and policies.

Socioeconomics and Environmental Justice. Negligible effects on socioeconomic resources would be expected from the proposed pavement construction. This activity would provide temporary employment for contractors in the area. Construction would occur entirely on McConnell AFB and have little potential to affect off-installation resources.

Infrastructure. Negligible effects on infrastructure resources would be expected from the proposed pavement construction. Short-term adverse effects would be expected as a result of the generation of as much as 190 tons of debris from construction (USACE 1976). This is a short-term adverse effect in that debris would only be generated during construction activities; however, debris that is not recycled would be landfilled, which would be considered a long-term irreversible adverse effect.

Hazardous Materials and Wastes. Short-term minor adverse effects would be expected from the use of hazardous materials during the pavement construction process. No long-term effects would be expected. McConnell AFB is committed to managing hazardous materials and wastes according to the installation's Hazardous Materials Management Plan (MAFB 2006c); Hazardous Waste Management Plan; and all applicable Federal, state, and local regulations and policies.

4.4.3.2 Project I2. Demolish Pavements of Existing BCE Complex

The proposed demolition of the existing BCE facilities would include the demolition of pavements (66,200 ft²) around the main cluster of those facilities, which is analyzed in **Section 4.4.1.3**. As shown in **Figure 2-2**, there are no sensitive environmental or operational constraints in the area proposed for pavement demolition.

Noise. Short-term minor adverse effects on noise levels would be expected as a result of the demolition of pavements. The noise emanating from this proposed infrastructure project would be localized and intermittent during equipment and machinery operations. **Table 3-2** shows the predicted noise levels for various pieces of equipment operating at 50 feet from the source. Heavy equipment would not be operational during the entire demolition period, which would limit the duration of increased noise levels. The demolition of this pavement would be expected to result in noise levels comparable to those indicated in **Table 4-17**. This area of McConnell AFB is used for industrial activities; typical noise receptors would include USAF personnel working in civil engineer shops, supply facilities, transportation maintenance and operations facilities, and utility operations. Typical noise receptors would be approximately 500 feet from the source of the demolition noise; noise levels would be comparable to that of a very noisy urban residential area (see **Table 3-1**).

Table 4-17. Predicted Noise Levels Resulting from Demolition of Current BCE Pavements

Proposed Project	Project Size (ft ²)	dBA at 50 feet	dBA at 300 feet	dBA at 500 feet	dBA at 1,000 feet	dBA at 3,000 feet
Demolish existing pavement at BCE Complex	66,200	89	74	69	64	54

Land Use. Long-term minor beneficial effects on land use would be expected from the demolition of pavements. The removal of unneeded pavements would be beneficial by increasing the installation's organizational functions and creating open space for future development. Future development, if it occurs, would be compatible with existing and future land uses.

Air Quality. Short-term minor intermittent adverse effects would be expected as a result of pavement demolition activities. These activities would result in air emissions from the operation of heavy machinery. Fugitive particulate matter would be minimized by continually spraying water over the project area. The proposed demolition of pavements would be expected to result in air emissions comparable to those indicated in **Table 4-18**.

Table 4-18. Expected Criteria Pollutant Emissions Resulting from Demolition of Current BCE Pavements

Proposed Project	Project Size (ft ²)	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO _x (tpy)	PM (tpy)
Demolish existing pavement at BCE Complex	66,200	0.1	0.02	0.2	<0.01	1.9
<i>10% of Regional Emissions Inventory</i>	3,088	3,520	19,336	835	8,528	

McConnell AFB is in attainment for all criteria pollutants, so the General Conformity Rule does not apply. In addition, the criteria pollutants generated by this project would not exceed 10 percent of the regional emissions values.

Safety. Short-term minor adverse effects would be expected as a result of the risks associated with construction-type activities. No long-term effects would be expected. Although all contractors are required to follow and implement OSHA standards to establish and maintain safety procedures, there would be an increased risk of accidents. Demolition activities would be accomplished in accordance with Federal, state, and local regulations to minimize hazards associated with hazardous materials, wastes, and substances.

Geological Resources. Short-term adverse effects would be expected from grading, excavating, and grooming of the soil. Soils in the area around the proposed pavements demolition have been heavily disturbed by previous activities. BMPs would be employed during demolition activities to minimize potentially adverse effects on soil and prevent soil and erosion runoff. All activities would comply with the installation's SWPPP (MAFB 2004c) and employ erosion-control techniques such as silt-fencing, sediment traps, and application of water sprays. Disturbed areas would be revegetated with native vegetation, as necessary. Grading, excavation, and recontouring of soil materials would adhere to Federal, state, and local regulations.

Water Resources. The demolition of the current BCE pavements has the potential to result in minor adverse effects as a result of erosion and sedimentation associated with ground-disturbing activities. BMPs in accordance with the installation's SWPPP would be implemented, reducing the potential for adverse effects on surface water bodies. Any construction activity that disturbs 1 acre or more is required to file a NPDES permit application with KDHE for storm water runoff resulting from construction sites. McConnell AFB is committed to managing water resources in accordance with the installation's INRMP (MAFB 2004a) and all applicable Federal, state, and local regulations and policies.

Long-term minor beneficial effects would be expected on water resources. The proposed demolition of existing BCE pavements would increase the amount of pervious area on McConnell AFB by approximately 66,200 ft².

McConnell AFB is committed to managing water resources in accordance with the installation's INRMP (MAFB 2004a); SWPPP (MAFB 2004c); and all applicable Federal, state, and local regulations and policies.

Biological Resources. The proposed pavement demolition would not be expected to result in adverse effects on biological resources. The area of proposed pavement demolition is largely disturbed; there is minimal existing vegetation, no suitable habitat for wildlife, and no wetlands. Furthermore, there are no known Federal- or state-protected species that occur on McConnell AFB. Following demolition activities, the demolished areas would be revegetated with native landscape and maintained as mowed areas until future development. McConnell AFB is committed to managing biological resources in accordance with the installation's INRMP (MAFB 2004a) and all applicable Federal, state, and local regulations and policies.

Cultural Resources. The proposed pavement demolition would not be expected to result in adverse effects on cultural resources. There are no known archaeological sites or traditional cultural properties in the vicinity of this proposed project, and the area is heavily disturbed with low potential to yield intact resources in the future. McConnell AFB is committed to managing cultural resources according to the installation's ICRMP (MAFB 2004b) and all applicable Federal, state, and local regulations and policies.

Socioeconomics and Environmental Justice. Negligible effects on socioeconomic resources would be expected from the proposed pavement demolition. This activity would provide temporary employment for contractors in the area. Demolition would occur entirely on McConnell AFB and have little potential to affect off-installation resources.

Infrastructure. Negligible effects on infrastructure resources would be expected from the proposed pavement demolition. Short-term adverse effects would be expected as a result of the generation of approximately 2,152 tons of asphalt debris from demolition (USEPA 1998). This is a short-term adverse effect in that debris would only be generated during demolition activities; however, debris that is not recycled would be landfilled, which would be considered a long-term irreversible adverse effect.

Hazardous Materials and Wastes. Short-term minor adverse effects would be expected from the use of hazardous materials during the pavement demolition process. No long-term effects would be expected. McConnell AFB is committed to managing hazardous materials and wastes according to the installation's Hazardous Materials Management Plan (MAFB 2006c); Hazardous Waste Management Plan; and all applicable Federal, state, and local regulations and policies.

4.4.3.3 Project I3. Ramp Deicing Improvements

Winter ice storms are fairly common at McConnell AFB and necessitate the use of propylene glycol for aircraft deicing. McConnell AFB has three deicing pads on the south end of the runway (Taxiway Alpha) for deicing aircraft. In addition, McConnell AFB conducts some aircraft deicing operations on the apron pavement when the apron is dry and there is no chance of precipitation; two "T-750 Ramp Rangers" are then used to wash and collect oversprayed propylene glycol (MAFB 2004c). All propylene glycol is collected and transported to USTs at the deicing pads. The stored propylene glycol is typically diluted with water. Collected propylene glycol is tested by 22 CES/CEV and disposed of in the sanitary sewer at a rate agreed upon with the city of Wichita.

Under this proposed project, McConnell AFB would construct collection points on the main ramp to deice and deploy aircraft more quickly. The preferred method of collection has not been determined but would be one of the following options: (1) divide the main ramp into four separate zones with tanks on the side, (2) use the existing ramp surface drainage system and collect the runoff prior to or just after the oil/water separator that is east of Building 1220, or (3) allow runoff to flow downstream and divert to a holding area prior to reaching the munitions storage area. These three methods could be analyzed as separate NEPA alternatives, but it is not anticipated that any of the three would differ in consequences either from construction or operation. It is anticipated that any of the three methods would result in a construction disturbance area of approximately 10,000 ft² along the airfield. The amount of propylene glycol used would not increase as a result of this project. **Figure 2-2** shows a general area where deicing would occur; construction of the collection points would avoid ERP sites and wetlands.

Noise. Short-term minor adverse effects would be expected as a result of constructing deicing collection points. The noise emanating from the proposed construction area would be localized, short-term, and intermittent during operation of construction equipment. As shown in **Table 4-19**, the anticipated noise levels as a result of construction would be minor. No long-term effects would be expected.

Land Use. No effects on land use would be expected from the proposed aircraft deicing. Collection points and deicing operations would occur in the airfield and aircraft operations and maintenance land use categories. The proposed deicing activities would be compatible with existing and future land use as identified in the McConnell AFB General Plan (MAFB 2005a).

Table 4-19. Predicted Noise Levels Resulting from Construction of Deicing Collection Points

Proposed Project	Project Size (ft ²)	dBA at 50 feet	dBA at 300 feet	dBA at 500 feet	dBA at 1,000 feet	dBA at 3,000 feet
Construct Deicing Collection Points	10,000	88	73	68	62	52

Air Quality. Short-term minor adverse effects would be expected as a result of constructing deicing collection points. Construction activities would result in air emissions from the operation of heavy machinery. As shown in **Table 4-20**, the anticipated air emissions as a result of construction would be very minor. No long-term effects would be expected.

McConnell AFB is in attainment for all criteria pollutants, so the General Conformity Rule does not apply. In addition, the criteria pollutants generated by the construction of deicing collection points would not exceed 10 percent of the regional emissions values.

Table 4-20. Expected Criteria Pollutant Emissions Resulting from Construction of Deicing Collection Points

Proposed Project	Project Size (ft ²)	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO _x (tpy)	PM (tpy)
Construct Deicing Collection Points	10,000	0.2	0.1	0.2	0.01	0.3
<i>10% of Regional Emissions Inventory</i>		3,088	3,520	19,336	835	8,528

Safety. Short-term minor adverse effects on safety would be expected as a result of increased risk associated with construction-type activities. No long-term effects would be expected. Although all contractors are required to follow and implement OSHA standards to establish and maintain safety procedures, there would be an increased risk of accidents. Construction activities would be accomplished only in accordance with Federal, state, and local regulations to minimize hazards associated with hazardous materials, wastes, and substances.

Geological Resources. Negligible to minor adverse effects on geological resources would be expected during construction. Construction of the proposed collection points would be in areas that are currently airfield or aircraft operations and maintenance. The airfield is almost entirely impervious surfaces, and the adjoining aircraft operations and maintenance areas are also largely impervious. If the collection points were constructed in what is currently soil, then minor adverse effects could occur as a result of grading, excavating, and recontouring. However, the construction area would be small (10,000 ft²), and with the implementation of BMPs to prevent soil and erosion runoff, adverse effects would be negligible. All construction activities would comply with the installation's SWPPP (MAFB 2004c) and employ erosion-control techniques such as silt-fencing, sediment traps, and application of water sprays, as necessary.

Water Resources. Negligible to minor short-term adverse effects on water resources would be expected during construction. Construction of the proposed collections points would be in areas that are currently airfield or aircraft operations and maintenance. The airfield is almost entirely impervious surfaces, and the adjoining aircraft operations and maintenance areas are also largely impervious. If the collection points were constructed in what is currently soil, then minor adverse effects could occur as a result of soil

runoff. However, the construction area would be small (10,000 ft²), and with the implementation of BMPs to prevent soil and erosion runoff, adverse effects would be negligible. All construction activities would comply with the installation SWPPP and Spill Prevention Control and Countermeasures Plan to minimize the potential for adverse effects on surface water bodies.

There is the potential for long-term adverse effects on water resources. Creation of impervious surfaces could occur; the loss of pervious surfaces, even minor losses, would be considered adverse. McConnell AFB currently uses propylene glycol for aircraft deicing. It is not anticipated that the volume of propylene glycol would increase as a result of this project. However, construction of new deicing fluid collection points would require modifications to the existing NPDES permit to ensure that all outfalls are monitored during winter months for inadvertent or excess releases of propylene glycol. The proposed aircraft deicing would comply with McConnell AFB's NPDES permit. Any modifications to the conditions addressed in the current NPDES permit should be coordinated early with KDHE.

McConnell AFB is committed to managing water resources in accordance with the installation's INRMP (MAFB 2004a); SWPPP (MAFB 2004c); and all applicable Federal, state, and local regulations and policies.

Biological Resources. The proposed ramp deicing would not be expected to result in adverse effects on biological resources. The vicinity of the proposed construction is heavily disturbed; there is minimal to no existing vegetation, no suitable habitat for wildlife, and no wetlands. Furthermore, there are no known Federal- or state-protected species that occur on McConnell AFB. McConnell AFB is committed to managing biological resources in accordance with the installation's INRMP (MAFB 2004a) and all applicable Federal, state, and local regulations and policies.

Cultural Resources. The construction of the deicing collection points would not be expected to result in adverse effects on cultural resources. There are no known archaeological sites or traditional cultural properties along the airfield, and the area is heavily disturbed with low potential to yield intact resources in the future. Buildings 9, 1106, 1107, 1218, and 1219 are NRHP-eligible structures that are adjacent to the airfield. Construction of the proposed deicing collection points would not be expected to affect the historical significance or integrity of these buildings. However, if the collection points would be sited in the vicinity of any of these structures, then the Cultural Resources Manager at McConnell AFB would consult with the SHPO prior to construction in accordance with Section 106 of the NHPA. McConnell AFB is committed to managing cultural resources according to the installation's ICRMP (MAFB 2004b) and all applicable Federal, state, and local regulations and policies.

Socioeconomics and Environmental Justice. Negligible effects on socioeconomic resources would be expected from the proposed deicing collection point construction. The construction activities would provide temporary employment for contractors in the area. Construction would occur entirely on McConnell AFB and have little potential to affect off-installation resources.

Infrastructure. Long-term beneficial effects would be expected as a result of the proposed aircraft deicing. Improvements to the airfield infrastructure to allow for greater efficiency of aircraft deicing would enable the mission at McConnell AFB. Modifications to the sanitary sewer and storm water collection systems would be required to accommodate the proposed aircraft deicing. Short-term adverse effects would be expected as a result of the generation of approximately 5 tons of construction debris (USEPA 1998). This is a short-term adverse effect in that debris would only be generated during construction activities; however, debris that is not recycled would be landfilled, which would be considered a long-term irreversible adverse effect. Construction debris is generally composed of clean materials, and most of this waste would be recycled or ground into gravel for reuse.

Hazardous Materials and Wastes. Short-term minor adverse effects would be expected from the use of hazardous materials during the construction process. The proposed deicing activities would require storage for propylene glycol runoff. Storage tanks would be installed according to AFI-32-7044, *Storage Tank Compliance*, and other Federal, state, and location regulations. It is not anticipated that the proposed ramp deicing would result in new waste streams. McConnell AFB is committed to managing hazardous materials and wastes according to the installation's Hazardous Materials Management Plan (MAFB 2006c); Hazardous Waste Management Plan; and all applicable Federal, state, and local regulations and policies.

4.4.4 Analysis of All Proposed Projects

Tables 4-21 through **4-23** summarize the potential environmental consequences associated with the remainder of the installation development projects that are identified in **Appendix A** but not previously analyzed as representative projects in **Sections 4.4.1, 4.4.2, and 4.4.3**. The proposed locations for these projects are identified in **Figures 4-1** and **4-2**. The intent of the tables included in this section is to focus on those potential environmental consequences that would be expected as a result of location- or operation-specific activities. All demolition and construction activities generally would be expected to result in some increased noise, increased air emissions, potential for erosion and transport of sediment into surface water bodies, generation of small amounts of hazardous materials and wastes, and generation of construction and demolition waste. All demolition and construction activities generally would be expected to result in minor beneficial effects on socioeconomics as a result of job creation and materials procurement. Furthermore, it should be assumed that demolition or renovation activities in older buildings have the potential to disturb asbestos or LBP and the appropriate identification, handling, removal, and disposal of those materials would occur in accordance with existing McConnell AFB management plans and Federal, state, DOD, and USAF regulations and guidance. These types of short-term construction-related effects are identified in **Section 4.3** in the general analysis and **Sections 4.4.1, 4.4.2, and 4.4.3** in the detailed analyses of the representative projects. Therefore, they are not discussed for each project in this section; it is assumed that, in the absence of unique constraints, the potential environmental effects associated with the size of a demolition or construction project would be similar to those described in **Sections 4.4.1, 4.4.2, and 4.4.3**. Other than those kinds of general construction-related environmental effects described in **Sections 4.3, 4.4.1, 4.4.2, and 4.4.3**, no other potential environmental effects on noise, land use, or socioeconomic resources were identified so these resources are not discussed in detail in this section.

All construction and demolition activities would adhere to McConnell AFB's existing plans and policies that have been identified and referenced throughout **Sections 2, 3, 4, and 7** of this IDEA. **Tables 4-21** through **4-23** are not meant to substitute for or initiate coordination that might be required as a result of the proposed activities; they are meant to identify potential effects on sensitive resources. The following summarizes the potential adverse effects associated with constraints for the projects identified in **Appendix A** and the existing management plans and policies regarding those affected resources.

Air Quality. No individual projects evaluated in **Tables 4-21** through **4-23** would be expected to result in modifications to the existing air permit or increase long-term air emissions.

Construction and demolition activities of all projects over the next 5 years would result in increased criteria pollutant emissions. It is likely that several demolition, construction, or infrastructure projects would occur simultaneously. **Sections 4.4.1, 4.4.2, and 4.4.3** analyze representative installation development projects, which are a sample of the largest demolition, construction, and infrastructure activities that would be expected to occur over the next 5 years. **Table 4-24** shows the total air emissions from implementation of all representative projects. **Table 4-24** is meant to be an example; in reality these

Table 4-21. Potential Constraints to Development Associated with the Proposed Facilities Demolition Projects Listed in Appendix A

Project Identification Number and Title	Figure	Resource Area					
		Hazardous Materials and Wastes	Cultural Resources	Wetlands	Biological Resources	Water Resources	Geological Resources
		Safety	Air Quality				
D4. Demolish Building 350	4-1	-	-	-	-	-	-
D5. Demolish Buildings 1102 and 1128	4-1	-	-	-	-	-	-
D6. Demolish Buildings 1127 and 1129	4-1	-	-	-	-	-	-
D7. Demolish Buildings 202, 185, and 319	4-1	-	-	-	-	⊕	-
D8. Demolish Buildings 732 and 795	4-1	-	-	-	-	-	-
D9. Demolish Building 710	4-1	-	-	-	-	-	-
D10. Demolish Building 510 (Base Chapel)	4-1	-	-	-	-	-	-
D11. Demolish Building 1404 and two revetments (BRAC C)	4-2	-	⊕	-	-	-	⊕
D12. Demolish Buildings 1540 and 1541	4-2	-	-	-	-	-	-
D13. Demolish Buildings 1112, 1110, and 1120	4-1	-	⊕	-	-	-	⊗
D14. Demolish Buildings 182, 183, and 184	4-1	-	-	-	-	-	-

Impacts Legend:

- No effects or negligible effects
- ⊕ Potential minor beneficial effects
- ⊗ Potential minor adverse effects
- Potentially significant (greater magnitude than representative projects)

Table 4-22. Potential Constraints to Development Associated with the Proposed Facilities Construction Projects Listed in Appendix A

Project Identification Number and Title	Figure	Safety	Resource Area				
			Hazardous Materials and Wastes	Cultural Resources	Wetlands	Biological Resources	Water Resources
Geological Resources	Air Quality						
C5. Construct Maintenance Hangar	4-1	-	⊗	-	-	-	-
C6. Construct Consolidated Support Center	4-1	-	⊗	⊗	-	-	-
C7. Construct 120-Person Dormitory	4-1	-	⊗	-	-	-	-
C7. Construct 120-Person Dormitory	4-1	-	⊗	-	-	-	-
C7. Construct 120-Person Dormitory One (BRAC)	4-1	-	⊗	-	-	-	-
C7. Construct 120-Person Dormitory Two (BRAC)	4-1	-	⊗	-	-	-	-
C8. Construct Wing Headquarters Facility, Phase II	4-1	-	⊗	-	-	-	-
C9. Construct Visiting Quarters	4-1	-	⊗	-	-	-	-
C10. Construct Vehicle Maintenance Facility	4-1	-	-	-	-	-	-
C11. Construct Education Center/Library Extension (Dole Center) (Building 412)	4-1	-	-	-	-	-	-
C12. Construct Senior Officer Quarters (SOQs) (6 units)	4-1	-	-	-	-	-	-

Impacts Legend:

- No effects or negligible effects
- ⊕ Potential minor beneficial effects
- ⊗ Potential minor adverse effects
- Potentially significant (greater magnitude than representative projects)

Table 4-22. Potential Constraints to Development Associated with the Proposed Facilities Construction Projects Listed in Appendix A (continued)

Project Identification Number and Title	Figure	Resource Area	Resource Area			
			Hazardous Materials and Wastes	Cultural Resources	Wetlands	Biological Resources
			Safety	Geological Resources	Water Resources	Air Quality
C13. Construct Base Chapel with Educational Area	4-1	-	-	-	-	-
C14. Construct Eyebrow Addition to Hangar 1106	4-1	-	-	-	-	⊗
C15. Construct Base Operations/Weather Facility	4-1	-	⊗	-	-	-
C16. Construct Small Arms Range Complex	4-2	-	⊗	-	-	-
C17. Consolidate Maintenance Group (Building 1170)	4-1	-	-	-	-	-
C18. Construct Services Squadron Administration	4-1 and 4-2	-	-	-	-	-
C19. Construct AFRC Training Facility (931 ARG)	4-1	-	-	-	-	-
C20. Construct Nuclear, Biological, and Chemical (NBC) Training Facility	4-2	-	-	-	-	-
C21. Add to/Repair Secondary Fire Station (Building 43)	4-1	-	-	-	-	-

Impacts Legend:

- No effects or negligible effects
- ⊕ Potential minor beneficial effects
- ⊗ Potential minor adverse effects
- Potentially significant (greater magnitude than representative projects)

Table 4-22. Potential Constraints to Development Associated with the Proposed Facilities Construction Projects Listed in Appendix A (continued)

Project Identification Number and Title	Figure	Resource Area	Resource Area				
			Hazardous Materials and Wastes	Cultural Resources	Wetlands	Biological Resources	Water Resources
		Safety					
		Air Quality					
C22. Construct Base Exchange (BX) Warehouse (Building 352)	4-1	-	-	-	-	-	-
C23. Add to Urban Training Center	4-2	-	⊕	-	-	-	⊗
C24. Construct Salt/Sand Storage Facility	4-2	-	-	⊗	-	-	-
C25. Construct Eating Area (patio) Extension for Airman Dining Hall (Building 408)	4-1	-	-	-	-	-	-

Impacts Legend:

- No effects or negligible effects
- ⊕ Potential minor beneficial effects
- ⊗ Potential minor adverse effects
- Potentially significant (greater magnitude than representative projects)

Table 4-23. Potential Constraints to Development Associated with the Proposed Infrastructure Projects Listed in Appendix A

Project Identification Number and Title	Figure	Resource Area					
		Hazardous Materials and Wastes	Cultural Resources	Wetlands	Biological Resources	Water Resources	Safety
Geological Resources	Air Quality						
14. Repair Base Roads	4-1 and 4-2	-	⊕	⊗	-	-	-
15. Construct parking for construction of 120-Person Dormitory	4-1	-	-	⊗	-	-	-
16. Demolish pavement to construct 120-Person Dormitory	4-1	-	-	-	-	-	-
17. Install Hydrant Fuel System including facilities, parking, and a property fence (Phase II)	4-1 and 4-2	-	-	⊗	-	-	⊗
18. Construct pavements for BRAC STAMP Relocation	4-2	-	⊗	-	-	-	-
19. Construct BRAC Munitions Delivery Road and upgrade Mulvane and Russell Streets	4-2	-	⊗	-	⊗	-	-
110. Remove USTs (8,000 gallons each) from Buildings 352	4-1	-	⊗	⊗	-	-	⊕

Impacts Legend:

- No effects or negligible effects
- ⊕ Potential minor beneficial effects
- ⊗ Potential minor adverse effects
- Potentially significant (greater magnitude than representative projects)

Table 4-23. Potential Constraints to Development Associated with the Proposed Infrastructure Projects Listed in Appendix A (continued)

Project Identification Number and Title	Figure	Safety	Geological Resources	Water Resources	Biological Resources	Wetlands	Resource Area	
							Hazardous Materials and Wastes	Cultural Resources
I11. Add to/Alter FAMcamp (includes construction of an aggregate roadway, 10 aggregate parking stands with sanitary connections, 3 concrete parking stands, sanitary storage, lift station and piping to the base system, and bath/shower facility; and electrical and water distribution [2,000 ft])	4-2	-	-	-	-	-	-	-
I12. Construct roadway – South Perimeter fence (FP)	4-2	-	⊗	-	⊗	-	-	⊗
I13. Install Fire Main, South Base	4-2	-	⊕	-	-	-	-	-
I14. Demolish pavement (Wichita St.)	4-1	-	-	-	-	-	-	-
I15. Demolish pavement (Pittsburgh St.)	4-1	-	-	-	-	-	-	-
I16. Demolish pavement (Corrosion Control Hangar)	4-1	-	-	-	-	-	-	-
I17. Demolish pavement (Maintenance Hangar)	4-1	-	-	-	-	-	-	-
I18. Demolish overhead electrical (Wichita St.)	4-1 and 4-2	-	-	-	-	-	-	-

Impacts Legend:

- No effects or negligible effects
- ⊕ Potential minor beneficial effects
- ⊗ Potential minor adverse effects
- Potentially significant (greater magnitude than representative projects)

Table 4-23. Potential Constraints to Development Associated with the Proposed Infrastructure Projects Listed in Appendix A (continued)

Project Identification Number and Title	Figure	Safety	Geological Resources	Water Resources	Biological Resources	Wetlands	Resource Area	
							Hazardous Materials and Wastes	Cultural Resources
119. Demolish overhead electrical (Kansas St.)	4-1	-	-	-	-	-	-	-
120. Demolish pavement (Coffeyville St.)	4-1	-	-	-	-	-	-	-
121. Demolish pavement (Wing Headquarters Addition)	4-1	-	-	-	-	-	-	-
122. Demolish pavement (Building 1090)	4-1	-	-	-	-	-	-	-
123. Demolish pavement (Dormitory 1)	4-1	-	-	-	-	-	-	-
124. Demolish pavement (Dormitory 2)	4-1	-	-	-	-	-	-	-
125. Construct parking (Dormitory 2)	4-1	-	-	⊕	-	-	-	-
126. Demolish pavement (Dormitory 3)	4-1	-	-	-	-	-	-	-
127. Construct parking (Dormitory 3)	4-1	-	-	⊕	-	-	-	-
128. Construct parking (Dormitory 4)	4-1	-	-	⊕	-	-	-	-
129. Demolish overhead electrical (munitions storage area distribution)	4-1 and 4-2	-	-	-	-	-	-	-
130. Demolish overhead electrical (NAV-Aids distribution)	4-2	-	-	-	-	-	-	-
131. Demolish airfield vault (airfield lighting system)	4-1	-	-	-	-	-	-	-

Impacts Legend:

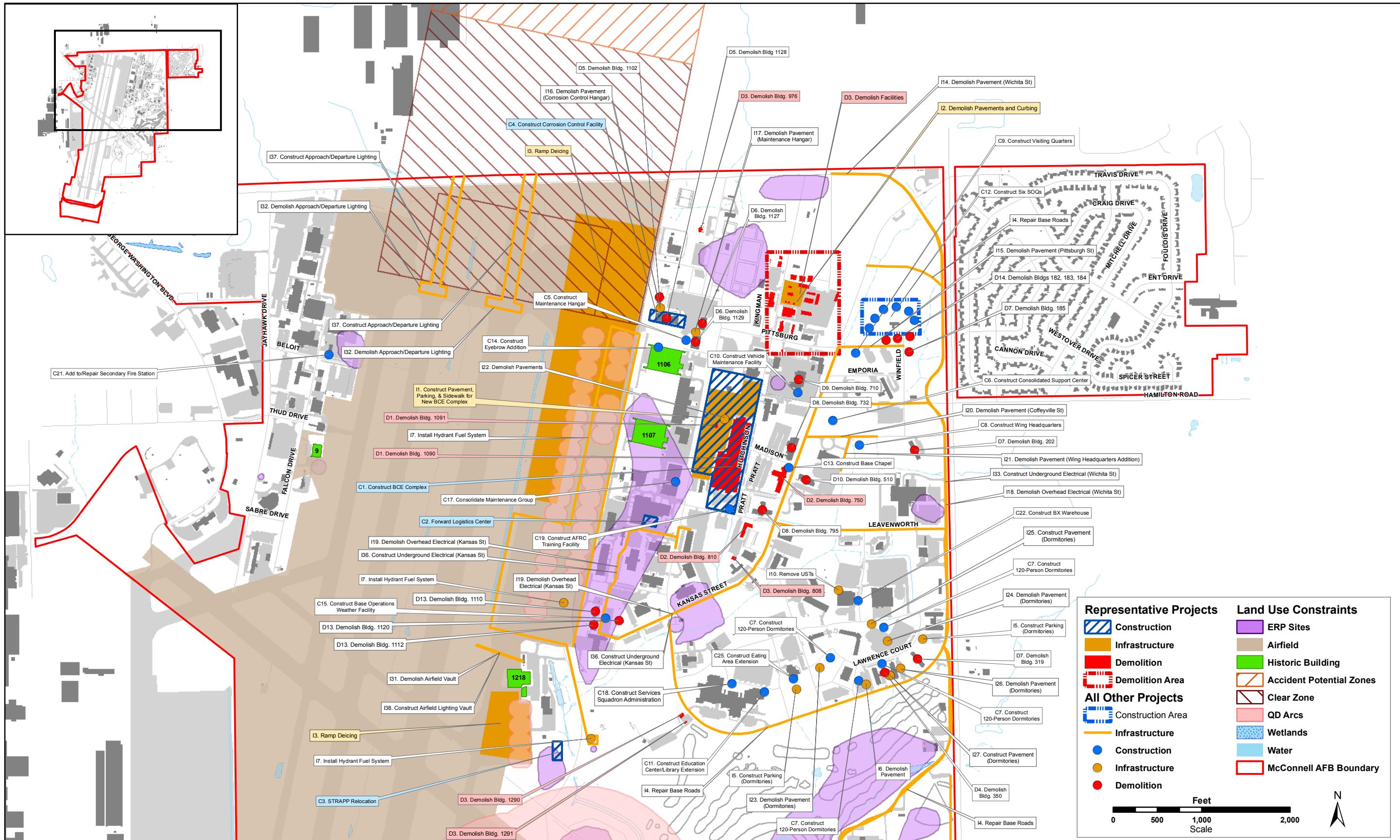
- No effects or negligible effects
- ⊕ Potential minor beneficial effects
- ⊗ Potential minor adverse effects
- Potentially significant (greater magnitude than representative projects)

Table 4-23. Potential Constraints to Development Associated with the Proposed Infrastructure Projects Listed in Appendix A (continued)

Project Identification Number and Title	Figure	Safety	Resource Area					
			Hazardous Materials and Wastes	Cultural Resources	Wetlands	Biological Resources		
		Air Quality	Geological Resources	Water Resources	Biological Resources	Wetlands	Cultural Resources	Hazardous Materials and Wastes
I32. Demolish approach/threshold lighting (airfield lighting system)	4-1 and 4-2	-	-	-	-	-	-	-
I33. Construct underground electrical (Wichita St.)	4-1 and 4-2	-	-	-	-	-	-	-
I34. Construct underground electrical (munitions storage area distribution)	4-1 and 4-2	-	⊗	-	⊗	-	-	⊗
I35. Construct underground electrical (NAV-Aids distribution)	4-2	-	-	-	-	-	-	-
I36. Construct underground electrical (Kansas St)	4-1	-	-	⊗	-	-	-	⊗
I37. Construct approach/threshold lighting (airfield lighting system)	4-1 and 4-2	-	⊕	-	-	-	-	-
I38. Construct airfield lighting vault (airfield lighting system)	4-1	-	-	-	-	-	-	-

Impacts Legend:

- No effects or negligible effects
- ⊕ Potential minor beneficial effects
- ⊗ Potential minor adverse effects
- Potentially significant (greater magnitude than representative projects)



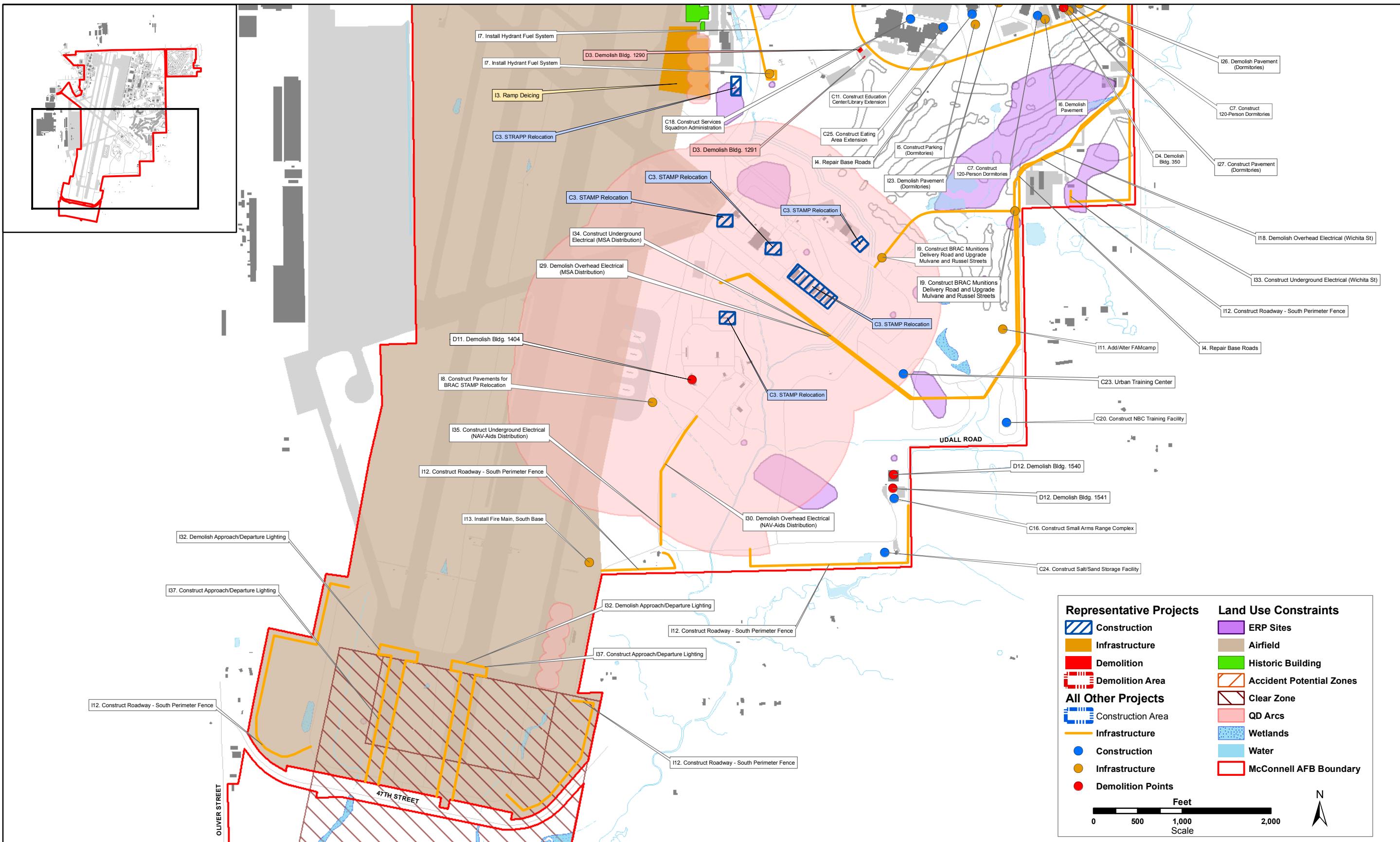


Figure 4-2. Map Showing Proposed Projects Relative to Known Land Use constraints on the Southern Portion of McConnell AFB

Table 4-24. Tons of Criteria Pollutants Produced by Representative Projects

Proposed Project	Area (ft ²)	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO _x (tpy)	PM (tpy)
D1. Demolish Buildings 1090 and 1091	214,230	0.5	0.08	0.7	0.01	6.3
D2. Demolish Buildings 750 and 810	52,000	0.1	0.02	0.2	<0.01	1.5
D3. Demolish Existing BCE Buildings	87,500	0.2	0.03	0.3	<0.01	2.6
C1. Construct BCE Complex	136,500	2.5	0.7	2.9	0.1	4.1
C2. Forward Logistics Center (Building 1169)	10,000	0.2	0.1	0.2	0.01	0.3
C3. STAMP/STRAPP Relocation	105,150	1.9	0.6	2.2	0.06	3.2
C4. Construct Corrosion Control Facility	51,000	0.9	0.3	1.1	0.03	1.5
I1. Construct pavements for BCE Complex	379,200	0.7	0.06	0.5	0.01	11.1
I2. Demolish pavements at existing BCE Complex	66,200	0.1	0.02	0.2	<0.01	1.9
I3. Construct Deicing Collection Points	10,000	0.2	0.1	0.2	0.01	0.3
Total		7.3	2.0	8.5	0.2	32.8
<i>10% of Regional Emissions Inventory</i>		3,088	3,520	19,336	835	8,528

representative projects would not be expected to occur at the same time, and they would occur over multiple years. As shown in **Table 4-24**, if all these projects were to be implemented simultaneously, the proposed emissions would be well below 10 percent of the regional emissions threshold; therefore, USEPA air quality standards and regulations would not be violated.

Safety. The potential for adverse effects on human health and safety as identified in **Tables 4-21** through **4-23** pertain primarily to construction and demolition activities within ERP sites. When there is the potential for construction workers to encounter contamination, a health and safety officer must be present during groundbreaking activities. If contamination is encountered, it would be handled, stored, transported, and disposed of in accordance with applicable Federal, state, and local regulations; AFIs; and McConnell AFB's Management Action Plan (MAFB 2005b). Projects with the potential to increase safety risks as a result of ERP sites include Projects D13, C15, C17, C23, I12, I34, and I36. Any proposed project that has the potential to interfere with an ERP site must be coordinated on an individual basis with KDHE and USEPA.

Other safety concerns include construction activities in a munitions storage area and the associated QD arcs, such as the construction of BRAC STAMP pavements (I8) and the BRAC munitions delivery road (I9). Munitions transport would not occur during construction, and the McConnell EOD team would be onsite in the event that UXO is encountered. The addition to the urban training center would require a waiver because it would be located within QD arcs. There is the potential for the long-term increase in safety risks associated with the construction of the small arms range. The range would be constructed and

operated in accordance with AFI 36-2226, *Combat Arms Program*, to ensure that the range does not pose unreasonable risks on human safety. Installation of a fire main on South Base (I13) would have long-term beneficial effects by providing the necessary firefighting capabilities. The replacement of approach/threshold airfield lighting (I38) would also likely result in long-term beneficial effects by improving visual approach and departure conditions of the runway.

Geological Resources. Those projects identified in **Tables 4-22** through **4-23** as having potentially adverse effects on geological resources include those projects that would require a NPDES permit for construction. Due to the size of the proposed construction areas of these specific projects, there is a greater potential for adverse effects as a result of soil erosion and runoff. BMP requirements of the NPDES permit would minimize the potential for adverse effects associated with erosion and sedimentation.

Water Resources. Those projects identified in **Tables 4-22** and **4-23** as having potentially adverse effects on water resources include those projects that would require a NPDES permit for construction. Due to the size of the proposed construction areas of these specific projects, there is a greater potential for adverse effects as a result of soil erosion and runoff. The NPDES permit would require preparation of a site-specific SWPPP to minimize the potential for adverse effects associated with contaminant-laden storm water runoff into receiving water bodies. As identified in **Section 3**, McConnell AFB has not identified any land within the 100-year floodplain, so no effects on the floodplain would be expected.

Development activities would result in the creation of impervious surfaces. **Table 2-4** summarizes the anticipated changes in impervious surfaces over the next 5 years. Overall, the proposed IDEA projects would add approximately 536,490 ft², or 12 acres, of impervious surfaces. Creation of impervious surfaces is an unavoidable long-term adverse effect.

Any construction activity that disturbs 1 acre or more is required to file a NPDES permit application with KDHE for storm water runoff resulting from construction sites. Furthermore, any modifications to the conditions addressed in the current NPDES permit, which could include increased flows or new outfalls, should be coordinated early with KDHE. See **Appendix C** for the letter from KDHE. The 22 CES/CEV would review all project design and construction plans and coordinate with KDHE as appropriate to ensure that all NPDES permitting requirements are met.

Several infrastructure projects would cross surface water bodies (i.e., I4, Repair Base Roads; I7, Install Hydrant Fuel System; I9, Construct BRAC Munitions Delivery Road and Upgrade Mulvane and Russel Streets; I12, Construct roadway for South Perimeter Fence; I34, Construct underground electrical for munitions storage area; and I35, Construct underground electrical for NAV-Aids distribution). Water bodies that are designated as waters of the United States are regulated under Sections 404 and 401 of the CWA. Most utility upgrades would be categorically excluded from detailed analysis under of 32 CFR Part 989, Appendix B A2.3.15, and implementation would require coordination and applicable permitting with the Tulsa District, USACE. The 22 CES/CEV would review all project design and construction plans and coordinate with USACE as appropriate to ensure that all Section 404 and 401 permitting requirements are met. Utility and road crossings would be expected to result in negligible to minor adverse effects on water resources with implementation of BMPs to reduce potentially adverse effects.

Biological Resources. No projects were identified that would adversely affect vegetation or wildlife. Minimal vegetation removal would be expected, but this would affect primarily mowed and maintained grasses. Wildlife habitat is poor at McConnell AFB. As identified in **Section 3**, there are no known Federal- or state-protected species or habitat on at McConnell AFB. In the event that any species are identified during the life of this IDEA, then those resources would be avoided and managed in accordance with the INRMP and Federal, state, and local regulations and policies, and the appropriate regulatory

agencies would be consulted. No projects would occur within the vicinity of wetlands. A current jurisdictional wetlands determination would be necessary prior to conducting activities that could affect wetlands or other waters of the United States. If a project location were moved so that a wetland would be affected, separate NEPA documentation will be prepared.

Cultural Resources. The proposed eyebrow addition to Hangar 1106 (project C14 in **Table 4-22**) has the potential to result in direct adverse effects on historical resources. Hangar 1106 has been determined to be eligible for the NRHP. Construction within or adjacent to this building, or any other NRHP-eligible structures (Buildings 9, 1107, 1218, and 1219), would require coordination with the SHPO to ensure that the historical integrity and feel of the building is not affected. Coordination would ensure that adverse effects on historic properties are avoided, minimized, or mitigated. Other projects are indicated in **Tables 4-21** through **4-23** as having potentially adverse effects on cultural resources (projects D7 and D11). These projects involve demolition of buildings that have not been surveyed for historical significance but will be at least 50 years old over the next 5 years. It is recommended that these structures (Building 202 constructed in 1959, and Building 1411 constructed in 1962) be surveyed prior to demolition so that adverse effects can be avoided, minimized, or mitigated in consultation with the SHPO.

As identified in **Section 3**, there are no known NRHP-eligible archaeological resources or traditional cultural properties on McConnell AFB, and the likelihood for discovery is low. In the event that any sites are identified during the life of this IDEA, then those resources would be avoided and managed in accordance with the ICRMP and Federal, state, and local regulations and policies, and the appropriate regulatory agencies would be consulted.

In a letter dated April 27, 2007, the SHPO concurred with the assessment in this IDEA, and McConnell AFB will consult on individual projects as needed in the future to avoid potentially adverse effects on cultural resources (see **Appendix C**).

Infrastructure. Potential infrastructure effects are not identified in **Tables 4-21** through **4-23**. The proposed IDEA projects would be expected to result in long-term beneficial effects on infrastructure systems by providing the required road and utilities upgrades to support existing and future missions.

However, demolition, construction, and infrastructure projects would result in adverse effects as a result of increased solid waste generation. As indicated in **Table 4-25**, approximately 78,718 tons would be generated over the next 5 years. Clean demolition and construction debris (e.g., concrete, asphalt) would be ground, recycled, and used for fill and road work rather than disposed of in a landfill. Any nonhazardous waste (i.e., construction and demolition waste) must be disposed of in a KDHE-permitted landfill (see letter in **Appendix C**).

Hazardous Materials and Wastes. Several projects, including demolition of Buildings 1112, 1110, and 1120 (D13); construction of a base operations/weather facility (C15); consolidation of Building 1170 (C17); addition to the urban training center (C23); construction of a roadway along the south perimeter fence (I12); construction of underground electrical lines for the munitions storage area (I34); and construction of underground electrical along Kansas Street (I37), could encounter contamination. As indicated under *Safety*, any contamination that is encountered during groundbreaking activities would be handled, stored, transported, and disposed of in accordance with applicable Federal, state, and local regulations; AFIs; and McConnell AFB's Management Action Plan (MAFB 2005b). Any proposed project that has the potential to interfere with an ERP site must be coordinated on an individual basis with KDHE and USEPA. A letter from KDHE is included in **Appendix C** in response to the Draft EA. The 22 CES/CEV would review all project design and construction plans and coordinate with KDHE and USEPA as appropriate.

**Table 4-25. Anticipated Generation of Construction and Demolition Debris
as a Result of All IDEA Projects**

Proposed Project	Project Size (ft²)	Multiplier (pounds/ft²)	Total Waste Generated	
			pounds	tons
Proposed IDEA Demolition ^a	686,730	155	106,443,150	53,222
Proposed IDEA Construction ^a	871,230	4.38	815,987	1,908
Proposed IDEA Renovation ^a	12,900	24.05	310,245	155
Proposed IDEA Pavement Demolition ^b	693,100	65	45,051,500	22,526
Proposed IDEA Pavement Construction ^c	1,760,300	1	1,631,100	880
Total				78,691

Sources: ^a USEPA 1998, ^b calculated using standard asphalt density, ^c USACE 1976

Installation of a hydrant fuel system (I7) has the potential to result in adverse effects in the event of a fuel leak or spill. Appropriate secondary containerization of storage tanks and adherence to the Hazardous Materials Management Plan; Hazardous Waste Management Plan; Spill Prevention Control and Countermeasures Plan; and all other Federal, state, and local laws and regulations would minimize the potential for adverse effects. Removal of the USTs (I10) would be expected to result in long-term beneficial effects by removing those USTs as a potential source of soil and water contamination.

5. Cumulative Effects

CEQ implementing guidelines for NEPA require that the direct, indirect, and cumulative effects of an action be evaluated and published. Cumulative effects are the incremental impacts of an action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. In other words, an EA must determine if nonsignificant direct effects caused by implementation of the Proposed Action or any of the alternatives would become significant if considered in concert with other actions occurring within the area of interest, defined both geographically and temporally. Actions overlapping with or in close proximity to the Proposed Action would be expected to have greater potential for an incremental impact than those more geographically separated. Similarly, actions that coincide, even partially, in time would tend to offer a higher potential for cumulative effects.

To identify cumulative effects, the analysis needs to address two fundamental questions:

1. Does a relationship exist such that affected resource areas of the Proposed Action or alternatives might interact with the affected resource areas of past, present, or reasonably foreseeable actions?
2. If such a relationship exists, then does an EA reveal any potentially significant impacts not identified when the Proposed Action is considered alone?

The scope of the cumulative effects analysis involves both timeframe and geographic extent in which effects could be expected to occur, as well as a description of what resources could potentially be cumulatively affected. For the purposes of this analysis, the temporal span of the Proposed Action is 5 years. For most resources, the spatial area for consideration of cumulative effects is McConnell AFB, with the exception of effects on air quality, which considers Sedgwick County as the ROI, and socioeconomics, which has an ROI defined as the census tract containing McConnell AFB and the adjacent census tracts. Similarly, impacts on resources and conditions of activities attributable to other actions within the ROI would not augment the direct and indirect effects of the installation development at McConnell AFB to the extent that they would significantly increase their effect.

The only actions identified for cumulative effects analysis include those pertaining to BRAC 2005 recommendations. Installation development activities that would be required as a result of BRAC are included in this IDEA as proposed projects over the next 5 years. BRAC recommendations include a loss of 27 military and 183 civilian authorizations, and a gain of 704 military and 28 civilian authorizations. The net results would be a gain of 677 military personnel and a loss of 155 civilian personnel, or a total gain of 522 people. The recommendations also include a total gain of 21 KC-135R aircraft to the 22 ARW and 931 ARG (active and reserve), and a loss of 9 KC-135R aircraft from the 184 ARW (KANG), for a total gain of 12 KC-135R aircraft.

The following summarizes potential cumulative effects on specific resources as a result of implementing the proposed IDEA projects and the BRAC 2005 recommendations for personnel and aircraft.

Noise and Land Use. The net gain of 12 aircraft and 522 people under the BRAC action could result in adverse effects from increased aircraft operations and vehicle traffic. It is not anticipated that the noise contours would exceed previously assessed noise levels because McConnell AFB once had 48 aircraft. An expansion of noise contours that includes incompatible land use would be considered an adverse effect. In addition, an increase in vehicle traffic could affect the ambient noise environment. There would not be an increase in aircraft operations or vehicle traffic under the IDEA.

Noise impacts in the IDEA include short-term increases in noise levels from construction projects, including those projects that are anticipated to occur under the BRAC action. Consequently, it is not anticipated that there would be additional construction projects under the BRAC action. Cumulative effects from the IDEA and the BRAC actions could occur from the increase in long-term noise impacts from the BRAC action and the short-term noise impacts discussed in the IDEA. These impacts could affect the on-installation population. However, as previously mentioned, the noise impacts identified in the IDEA are temporary, therefore cumulative noise effects from the IDEA and the BRAC action would also be temporary.

Air Quality. The net gain of 12 aircraft could result in adverse effects as a result of increased aircraft operations. Increased aircraft would also increase maintenance activities, such as painting and corrosion control, that result in air emissions. It is not anticipated that the air emissions would exceed previously assessed levels because McConnell AFB once had 48 aircraft. However, air emissions modeling data are not available for the proposed BRAC actions at this time. Increased personnel would increase mobile source emissions from automobiles. Sedgwick County is in attainment for all criteria pollutants. Air emissions would not be expected to result in significant cumulative effects on air quality.

Safety. The proposed installation development activities would increase construction safety risks, and increased aircraft operations would increase flight risks. These short-term and long-term increased safety risks would not be cumulatively significant.

Geological Resources. No cumulative effects on geological resources would be expected. The proposed installation development activities would result in short-term adverse effects associated with increased soil runoff and sedimentation. However, the gain in aircraft and personnel associated with BRAC would not be expected to affect geological resources.

Water Resources. The proposed installation development activities would result in short-term adverse effects associated with increased soil runoff and sedimentation, and long-term effects associated with the increase in impervious surfaces and potential new sources of water pollution (e.g., deicing operations and salt/sand storage facility). However, proposed IDEA projects would not be expected to increase potable water consumption. Under BRAC actions, the net gain of personnel would increase the demand on potable water, which would be considered a long-term adverse effect. No significant cumulative adverse effects on water resources would be expected.

Biological Resources. No cumulative effects on biological resources would be expected. Negligible to no adverse effects on biological resources were identified as a result of the proposed installation development activities. Furthermore, the gain in aircraft and personnel associated with BRAC would not be expected to affect biological resources.

Cultural Resources. No cumulative effects on cultural resources would be expected. There is the potential for adverse effects associated with modifications to NRHP-eligible buildings (e.g., eyebrow addition to Building 1106). However, the gain in aircraft and personnel associated with BRAC would not be expected to affect cultural resources.

Socioeconomics and Environmental Justice. Minor beneficial cumulative effects would be expected. Construction expenditures associated with the proposed IDEA projects would result in minor beneficial effects. The proposed gain in personnel would stimulate the local economy in the long term. The loss of civilian authorizations could be a long-term adverse effect if civilians left the socioeconomic ROI for other employment opportunities. Wichita is a fairly urban area, so the influence of gaining 522 people would be minor in the surrounding Wichita community.

Infrastructure. Long-term beneficial cumulative effects would be expected. The proposed IDEA projects would repair and upgrade roads and utilities so they can support additional aircraft and personnel. The net increase in aircraft and personnel would not be possible without the proposed IDEA projects.

Hazardous Materials and Wastes. Minor adverse cumulative effects could occur as a result of the short- and long-term increases in hazardous materials and wastes. Maintenance of the additional aircraft would increase the amount of petroleum and hazardous materials that are used. No significant cumulative adverse effects on hazardous materials and waste management would be expected.

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APPENDIX A

PROPOSED McCONNELL AFB INSTALLATION DEVELOPMENT PROJECTS

Appendix A
Projects Proposed for McConnell AFB

Table A-1. Proposed Facilities Demolition Projects

Installation Project Number	Project Identification Number and Title	FY	Land Use Category	Area Removed (ft ²)	Change in Impervious Surface (ft ²)
Representative Demolition Projects					
07-5110 P2	D1. Demolish Buildings 1090 and 1091	2009	IND	214,230	-211,720
87-5019 R1	D2. Demolish Buildings 750 and 810	20xx	AS	52,000	-35,980
05-5022	D3. Demolish Buildings 697, 682, 685, 688, 689, 690, and 692 (Phase I); Buildings 948, 695, 696, 691, 693, 699, 701, 937, 938, 976, 1290, 1291, and 694 (Phase II); Buildings 683, 681, 684, and 808 (Phase III)	20xx	IND	87,500	-70,000
All Other Demolition Projects					
05-5507	D4. Demolish Building 350	20xx	HS	83,800	-28,960
04-5002 P2	D5. Demolish Buildings 1102 and 1128	2011	AOM	31,650	-31,650
97-8016	D6. Demolish Buildings 1127 and 1129	20xx	AOM	50,300	-24,980
00-5006	D7. Demolish Buildings 202, 185, and 319	20xx	HS	45,300	-22,770
87-5020 R1	D8. Demolish Buildings 732 and 795	2014	AS	37,600	-37,600
01-5001	D9. Demolish Building 710	20xx	IND	24,900	-24,900
05-5181	D10. Demolish Building 510 (Base Chapel)	20xx	COM	13,200	-13,200
05-9126	D11. Demolish Building 1404 and two revetments (BRAC)	2009	IND	4,300	-4,300

Land Use Categories: AF = Airfield, AOM = Airfield Operations and Maintenance, AS = Administrative, COM = Community and Service, HS = Housing, IND = Industrial, MED = Medical, OR = Outdoor Recreation, OS = Open Space, INF = Infrastructure (crossing multiple land use categories)

Table A-1. Proposed Facilities Demolition Projects (continued)

Installation Project Number	Project Identification Number and Title	FY	Land Use Category	Area Removed (ft²)	Change in Impervious Surface (ft²)
05-5155	D12. Demolish Buildings 1540 and 1541	2012	IND	12,100	-12,100
89-5012	D13. Demolish Buildings 1112, 1110, and 1120	2013	AOM	19,450	-19,450
06-9100 P1/P2	D14. Demolish Buildings 182, 183, and 184	2008	COM	10,400	-10,400
Total (ft²)				686,730	-548,010

Land Use Categories: AF = Airfield, AOM = Airfield Operations and Maintenance, AS = Administrative, COM = Community and Service, HS = Housing, IND = Industrial, MED = Medical, OR = Outdoor Recreation, OS = Open Space, INF = Infrastructure (crossing multiple land use categories)

Table A-2. Proposed Facilities Construction Projects

Installation Project Number	Project Identification Number and Title	FY	Land Use Category	Area Constructed (ft ²)	Change in Impervious Surface (ft ²)
Representative Construction Projects					
05-5022	C1. Construct Base Civil Engineering (BCE) Maintenance Complex (Phase I: maintenance shop, covered shop, pavement and grounds, hazardous storage, and new equipment yard; Phase II: Base Civil Engineering Administration, Engineering, Environmental, Operations, and Maintenance shops; Phase III: Readiness, Base Contracting, and EOD shop)	20xx	IND	136,500	+124,500
07-5110 P2	C2. Construct a Forward Logistics Center (Building 1169), includes altering interior facility space and adding 10,000 ft ² of new facility space	2009	AOM	10,000	+10,000
05-9126	C3. BRAC STAMP Relocation (Construct various munitions storage facilities and a munitions maintenance operating facility)	2009	IND	53,550	+53,550
05-9348	C3. BRAC STRAPP Relocation	2009	IND	51,600	+51,600
04-5002 P2	C4. Construct Corrosion Control Facility, Phase II	2010	AOM	51,000	+51,000
All Other Construction Projects					
97-8016	C5. Construct Maintenance Hangar	20xx	AOM	81,000	+81,000
87-5020 R1	C6. Construct Consolidated Support Center	2014	AS	59,000	+29,500
04-5003	C7. Construct 120-Person Dormitory	2010	HS	48,100	+16,100
04-5004	C7. Construct 120-Person Dormitory	2014	HS	48,100	+16,100
05-5506	C7. Construct 120-Person Dormitory One (BRAC)	20xx	HS	48,100	+16,100
05-5507	C7. Construct 120-Person Dormitory Two (BRAC)	20xx	HS	48,100	+16,100
87-5019 R1	C8. Construct Wing Headquarters Facility, Phase II	20xx	AS	47,600	+23,800

Land Use Categories: AF = Airfield, AOM = Airfield Operations and Maintenance, AS = Administrative, COM = Community and Service, HS = Housing, IND = Industrial, MED = Medical, OR = Outdoor Recreation, OS = Open Space, INF = Infrastructure (crossing multiple land use categories)

Table A-2. Proposed Facilities Construction Projects (continued)

Installation Project Number	Project Identification Number and Title	FY	Land Use Category	Area Constructed (ft ²)	Change in Impervious Surface (ft ²)
00-5006	C9. Construct Visiting Quarters	20xx	HS	45,200	+15,100
01-5001	C10. Construct Vehicle Maintenance Facility	20xx	IND	30,100	+30,100
04-5102	C11. Construct Education Center/Library Extension (Dole Center) (Building 412)	20xx	COM	25,000	+12,500
06-9100 P1/P2	C12. Construct Senior Officer Quarters (6 units)	2008	HS	17,800	+8,900
05-5181	C13. Construct Base Chapel with Educational Area	20xx	COM	13,200	+13,200
06-5115	C14. Construct Eyebrow Addition to Hangar 1106	20xx	AOM	12,900	0
89-5012	C15. Construct Base Operations/Weather Facility	2013	AOM	10,000	+10,000
05-5155	C16. Construct Small Arms Range Complex	2011	IND	10,000	+10,000
07-5110P1	C17. Consolidate Maintenance Group (Building 1170)	2008	AOM	10,000	0
04-5001	C18. Construct Services Squadron Administration	2009	COM	15,600	+15,600
04-5101	C19. Construct AFRC Training Facility (931 ARG)	20xx	AOM	7,000	+7,000
05-0017	C20. Construct Nuclear, Biological, and Chemical (NBC) Training Facility	2011	IND	4,500	+4,500
01-5012 A	C21. Add to/Repair Secondary Fire Station (Building 43)	2008	IND	1,850	+1,850
05-2136	C22. Construct Base Exchange (BX) Warehouse (Building 352)	2009	COM	1,800	+1,800
04-0097	C23. Add to Urban Training Center	2011	IND	1,000	+1,000
04-3100	C24. Construct Salt/Sand Storage Facility	2010	OS	1,000	+1,000
04-0004 B	C25. Construct Eating Area (patio) Extension for Airman Dining Hall (Building 408)	20xx	COM	600	+600
Total (ft²)				890,200	+622,500

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Table A-3. Proposed Infrastructure Projects

Installation Project Number	Project Identification Number and Title	FY	Land Use Category	Project Size (ft ²)	Change in Impervious Surface (ft ²)
Representative Infrastructure Projects					
05-5022	I1. Construct pavements, parking, and sidewalk for construction of Base Civil Engineering Complex (Phases I, II, and III)	20xx	IND	379,200	+379,200
05-5022	I2. Demolish pavements and curbing for construction of Base Civil Engineering Complex (Phases II and III)	20xx	IND	66,200	-66,200
06-5002	I3. Ramp Deicing	2014	AF	10,000	+10,000
All Other Infrastructure Projects					
87-5024 R1	I4. Repair Base Roads (Wichita, Manhattan, and Leavenworth)	2009	INF	201,100	0
05-5003	I5. Construct parking for construction of 120-Person Dormitory	2010	HS	130,000	+130,000
05-5507	I6. Demolish pavement to construct 120-Person Dormitory	20xx	HS	130,000	-130,000
95-8106	I7. Install Hydrant Fuel System including facilities, parking, and a property fence (Phase II)	2007	AF/ AOM	104,000	+104,000
05-9126	I8. Construct pavements for BRAC STAMP Relocation	2009	IND	100,400	+100,400
05-5505	I9. Construct BRAC Munitions Delivery Road (38,800 ft ²) and upgrade Mulvane and Russel Streets (110,600 ft ²)	2009	IND	149,400	+38,800
04-0013	I10. Remove Underground Storage Tanks (8,000 gallons each) from Buildings 352	2011	COM	900	0

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Table A-3. Proposed Infrastructure Projects (continued)

Installation Project Number	Project Identification Number and Title	FY	Land Use Category	Project Size	Change in Impervious Surface (ft ²)
98-0025 R3	I11. Add to/Alter FAMcamp (includes construction of an aggregate roadway, 10 aggregate parking stands with sanitary connections, 3 concrete parking stands, sanitary storage, lift station and piping to the base system, and bath/shower facility; and electrical and water distribution [2,000 ft])	2009	OR	62,000	+62,000
04-0101	I12. Construct roadway – south perimeter fence (FP) (12,000 ft)	2008	INF	240,000	+240,000
04-3085	I13. Install Fire Main, South Base (11,000 ft)	2009	AF	55,000	0
05-5505	I14. Demolish pavement (Wichita St.)	2009	OS	21,200	-21,200
06-9100 P1/P2	I15. Demolish pavement (Pittsburgh St.)	2008	COM	14,100	-14,100
04-0502	I16. Demolish pavement (Corrosion Control Hangar)	2010	AOM	39,400	-39,400
97-8016	I17. Demolish pavement (Maintenance Hangar)	20xx	AOM	50,000	-50,000
04-0066 P1	I18. Demolish overhead electrical (Wichita St.)	2010	INF	180	0
03-0066 P3/P4	I19. Demolish overhead electrical (Kansas St.)	2008	INF	160	0
87-5020 R1	I20. Demolish pavement (Coffeyville St.)	2014	AS	12,700	-12,700
87-5019 R1	I21. Demolish pavement (Wing Headquarters Addition)	20xx	AS	10,000	-10,000
07-5110 P2	I22. Demolish pavement (Building 1090)	2009	IND	108,000	-108,000
04-5003	I23. Demolish pavement (Dormitory 1)	2010	COM	130,000	-130,000
04-5004	I24. Demolish pavement (Dormitory 2)	2015	COM	100,000	-100,000
04-5004	I25. Construct parking (Dormitory 2)	2015	COM	43,000	+43,000
05-5506	I26. Demolish pavement (Dormitory 3)	20xx	COM	50,000	-50,000
05-5506	I27. Construct parking (Dormitory 3)	20xx	COM	43,100	+43,100
05-5507	I28. Construct parking (Dormitory 4)	20xx	COM	43,100	+43,100

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Table A-3. Proposed Infrastructure Projects (continued)

Installation Project Number	Project Identification Number and Title	FY	Land Use Category	Project Size	Change in Impervious Surface (ft²)
04-0066 P2	I29. Demolish overhead electrical (munitions storage area distribution)	2009	IND	120	0
04-0066 P3	I30. Demolish overhead electrical (NAV-Aids distribution)	2011	OS	35	0
05-0101 P1	I31. Demolish airfield vault (airfield lighting system)	2008	AOM	500	0
05-0101 P2	I32. Demolish approach/threshold lighting (airfield lighting system)	2013	AOM	500	0
04-0066 P1	I33. Construct underground electrical (Wichita St.)	2010	INF	17,400	0
04-0066 P2	I34. Construct underground electrical (munitions storage area distribution)	2009	IND	12,200	0
04-0066 P3	I35. Construct underground electrical (NAV-Aids distribution)	2011	OS	3,300	0
03-0066 P3/P4	I36. Construct underground electrical (Kansas St)	2008	INF	16,400	0
05-0101 P2	I37. Construct approach/threshold lighting (airfield lighting system)	2013	AOM	500	0
05-0101 P1	I38. Construct airfield lighting vault (airfield lighting system)	2008	AOM	500	0
Total (ft²)				2,344,595	+462,000

Land Use Categories: AF = Airfield, AOM = Airfield Operations and Maintenance, AS = Administrative, COM = Community and Service, HS = Housing, IND = Industrial, MED = Medical, OR = Outdoor Recreation, OS = Open Space, INF = Infrastructure (crossing multiple land use categories)

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APPENDIX B

APPLICABLE LAWS, REGULATIONS, POLICIES, AND PLANNING CRITERIA

Appendix B

Applicable Laws, Regulations, Policies, and Planning Criteria

When considering the affected environment, the various physical, biological, economic, and social environmental factors must be considered. In addition to the National Environmental Policy Act (NEPA), there are other environmental laws and Executive Orders (EOs) to be considered when preparing environmental analyses. These laws are summarized below.

Noise

The Air Installation Compatible Use Zone (AICUZ) Program, (Air Force Instruction [AFI] 32-7063), provides guidance to air bases and local communities in planning land uses compatible with airfield operations. The AICUZ program describes existing aircraft noise and flight safety zones on and near U.S. Air Force (USAF) bases.

Land Use

Land use planning in the USAF is guided by *Land Use Planning Bulletin, Base Comprehensive Planning* (HQ USAF/LEEVX, August 1, 1986). This document provides for the use of 12 basic land use types found on an AFB. In addition, land use guidelines established by the U.S. Department of Housing and Urban Development (HUD) and based on findings of the Federal Interagency Committee on Noise (FICON) are used to recommend acceptable levels of noise exposure for land use.

Air Quality

The Clean Air Act (CAA) of 1970, and Amendments of 1977 and 1990, recognizes that increases in air pollution result in danger to public health and welfare. To protect and enhance the quality of the Nation's air resources, the CAA authorizes the U.S. Environmental Protection Agency (USEPA) to set six National Ambient Air Quality Standards (NAAQS) which regulate carbon monoxide, lead, nitrogen dioxide, ozone, sulfur dioxide, and particulate matter pollution emissions. The CAA seeks to reduce or eliminate the creation of pollutants at their source, and designates this responsibility to state and local governments. States are directed to utilize financial and technical assistance as well as leadership from the Federal government to develop implementation plans to achieve NAAQS. Geographic areas are officially designated by USEPA as being in attainment or nonattainment to pollutants in relation to their compliance with NAAQS. Geographic regions established for air quality planning purposes are designated as Air Quality Control Regions (AQCRs). Pollutant concentration levels are measured at designated monitoring stations within the AQCR. An area with insufficient monitoring data is designated as unclassifiable. Section 309 of the CAA authorizes USEPA to review and comment on impact statements prepared by other agencies.

An agency should consider what effect an action could have on NAAQS due to short-term increases in air pollution during construction as well as long-term increases resulting from changes in traffic patterns. For actions in attainment areas, a Federal agency may also be subject to USEPA's Prevention of Significant Deterioration (PSD) regulations. These regulations apply to new major stationary sources and modifications to such sources. Although few agency facilities will actually emit pollutants, increases in pollution can result from a change in traffic patterns or volume. Section 118 of the CAA waives Federal immunity from complying with the CAA and states all Federal agencies will comply with all Federal- and state-approved requirements.

Safety

AFI 91-202, *USAF Mishap Prevention Program*, implements Air Force Policy Directive (AFPD) 91-2, *Safety Programs*. It establishes mishap prevention program requirements (including the Bird/Wildlife Aircraft Strike Hazard [BASH] Program), assigns responsibilities for program elements, and contains program management information. This instruction applies to all USAF personnel.

AFI 91-301, *Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Program*, implements AFD 91-3, *Occupational Safety and Health*, by outlining the AFOSH Program. The purpose of the AFOSH Program is to minimize loss of USAF resources and to protect USAF personnel from occupational deaths, injuries, or illnesses by managing risks. In conjunction with the USAF Mishap Prevention Program, these standards ensure all USAF workplaces meet Federal safety and health requirements. This instruction applies to all USAF activities.

Water Resources

The Clean Water Act (CWA) of 1977 is an amendment to the Federal Water Pollution Control Act of 1972, is administered by USEPA, and sets the basic structure for regulating discharges of pollutants into U.S. waters. The CWA requires USEPA to establish water quality standards for specified contaminants in surface waters and forbids the discharge of pollutants from a point source into navigable waters without a National Pollutant Discharge Elimination System (NPDES) permit. NPDES permits are issued by USEPA or the appropriate state if it has assumed responsibility. Section 404 of the CWA establishes a Federal program to regulate the discharge of dredge and fill material into waters of the United States. Section 404 permits are issued by the U.S. Army Corps of Engineers (USACE). Waters of the United States include interstate and intrastate lakes, rivers, streams, and wetlands that are used for commerce, recreation, industry, sources of fish, and other purposes. The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Each agency should consider the impact on water quality from actions such as the discharge of dredge or fill material into U.S. waters from construction, or the discharge of pollutants as a result of facility occupation.

Section 303(d) of the CWA requires states and USEPA to identify waters not meeting state water-quality standards and to develop Total Maximum Daily Loads (TMDLs). A TMDL is the maximum amount of a pollutant that a waterbody can receive and still be in compliance with state water-quality standards. After determining TMDLs for impaired waters, states are required to identify all point and nonpoint sources of pollution in a watershed that are contributing to the impairment and to develop an implementation plan that will allocate reductions to each source in order to meet the state standards. The TMDL program is currently the Nation's most comprehensive attempt to restore and improve water quality. The TMDL program does not explicitly require the protection of riparian areas. However, implementation of the TMDL typically calls for restoration of riparian areas as one of the required management measures for achieving reductions in nonpoint source pollutant loadings.

The Safe Drinking Water Act (SDWA) of 1974 establishes a Federal program to monitor and increase the safety of all commercially and publicly supplied drinking water. Congress amended the SDWA in 1986, mandating dramatic changes in nationwide safeguards for drinking water and establishing new Federal enforcement responsibility on the part of USEPA. The 1986 amendments to the SDWA require the USEPA to establish Maximum Contaminant Levels (MCLs), Maximum Contaminant Level Goals (MCLGs), and Best Available Technology (BAT) treatment techniques for organic, inorganic, radioactive, and microbial contaminants; and turbidity. MCLGs are maximum concentrations below which no negative human health effects are known to exist. The 1996 amendments set current Federal MCLs, MCLGs, and BATs for organic, inorganic, microbiological, and radiological contaminants in public drinking water supplies.

The Wild and Scenic Rivers Act of 1968 provides for a wild and scenic river system by recognizing the remarkable values of specific rivers of the Nation. These selected rivers and their immediate environment are preserved in a free-flowing condition, without dams or other construction. The policy not only protects the water quality of the selected rivers but also provides for the enjoyment of present and future generations. Any river in a free-flowing condition is eligible for inclusion, and can be authorized as such by an Act of Congress, an act of state legislature, or by the Secretary of Interior upon the recommendation of the governor of the state(s) through which the river flows.

EO 11988, *Floodplain Management* (May 24, 1977) directs agencies to consider alternatives to avoid adverse effects and incompatible development in floodplains. An agency may locate a facility in a floodplain if the head of the agency finds there is no practicable alternative. If it is found there is no practicable alternative, the agency must minimize potential harm to the floodplain, and circulate a notice explaining why the action is to be located in the floodplain prior to taking action. Finally, new construction in a floodplain must apply accepted floodproofing and flood protection to include elevating structures above the base flood level rather than filling in land.

Biological Resources

The Endangered Species Act (ESA) of 1973 establishes a Federal program to conserve, protect, and restore threatened and endangered plants and animals and their habitats. The ESA specifically charges Federal agencies with the responsibility of using their authority to conserve threatened and endangered species. All Federal agencies must ensure any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of an endangered or threatened species or result in the destruction of critical habitat for these species, unless the agency has been granted an exemption. The Secretary of the Interior, using the best available scientific data, determines which species are officially endangered or threatened, and the U.S. Fish and Wildlife Service (USFWS) maintains the list. A list of Federal endangered species can be obtained from the Endangered Species Division, USFWS (703-358-2171). States might also have their own lists of threatened and endangered species which can be obtained by calling the appropriate State Fish and Wildlife office. Some species, such as the bald eagle, also have laws specifically for their protection (e.g., Bald Eagle Protection Act).

The Migratory Bird Treaty Act (MBTA) of 1918, as amended, implements treaties and conventions between the United States, Canada, Japan, Mexico, and the former Soviet Union for the protection of migratory birds. Unless otherwise permitted by regulations, the MBTA makes it unlawful to pursue, hunt, take, capture, or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver, or cause to be shipped, exported, imported, transported, carried, or received any migratory bird, part, nest, egg, or product, manufactured or not. The MBTA also makes it unlawful to ship, transport or carry from one state, territory or district to another, or through a foreign country, any bird, part, nest, or egg that was captured, killed, taken, shipped, transported, or carried contrary to the laws from where it was obtained; and import from Canada any bird, part, nest, or egg obtained contrary to the laws of the province from which it was obtained. The U.S. Department of the Interior has authority to arrest, with or without a warrant, a person violating the MBTA.

EO 11514, *Protection and Enhancement of Environmental Quality* (March 5, 1970) states that the President, with assistance from the Council on Environmental Quality (CEQ), will lead a national effort to provide leadership in protecting and enhancing the environment for the purpose of sustaining and enriching human life. Federal agencies are directed to meet national environmental goals through their policies, programs, and plans. Agencies should also continually monitor and evaluate their activities to protect and enhance the quality of the environment. Consistent with NEPA, agencies are directed to share information about existing or potential environmental problems with all interested parties, including the public, in order to obtain their views.

EO 11990, *Protection of Wetlands* (May 24, 1977) directs agencies to consider alternatives to avoid adverse effects and incompatible development in wetlands. Federal agencies are to avoid new construction in wetlands, unless the agency finds there is no practicable alternative to construction in the wetland, and the proposed construction incorporates all possible measures to limit harm to the wetland. Agencies should use economic and environmental data, agency mission statements, and any other pertinent information when deciding whether or not to build in wetlands. EO 11990 directs each agency to provide for early public review of plans for construction in wetlands.

EO 13186, *Conservation of Migratory Birds* (January 10, 2001) creates a more comprehensive strategy for the conservation of migratory birds by the Federal government. EO 13186 provides a specific framework for the Federal government's compliance with its treaty obligations to Canada, Mexico, Russia, and Japan. EO 13186 provides broad guidelines on conservation responsibilities and requires the development of more detailed guidance in a Memorandum of Understanding (MOU). EO 13186 will be coordinated and implemented by the USFWS. The MOU will outline how Federal agencies will promote conservation of migratory birds. EO 13186 requires the support of various conservation planning efforts already in progress; incorporation of bird conservation considerations into agency planning, including NEPA analyses; and reporting annually on the level of take of migratory birds.

Cultural Resources

The American Indian Religious Freedom Act of 1978 and Amendments of 1994 recognize that freedom of religion for all people is an inherent right, and traditional American Indian religions are an indispensable and irreplaceable part of Indian life. It also recognized the lack of Federal policy on this issue and made it the policy of the United States to protect and preserve the inherent right of religious freedom for Native Americans. The 1994 Amendments provide clear legal protection for the use of peyote cactus as a religious sacrament. Federal agencies are responsible for evaluating their actions and policies to determine if changes should be made to protect and preserve the religious cultural rights and practices of Native Americans. These evaluations must be made in consultation with native traditional religious leaders.

The Archaeological Resource Protection Act (ARPA) of 1979 protects archaeological resources on public and American Indian lands. It provides felony-level penalties for the unauthorized excavation, removal, damage, alteration, or defacement of any archaeological resource, defined as material remains of past human life or activities which are at least 100 years old. Before archaeological resources are excavated or removed from public lands, the Federal land manager must issue a permit detailing the time, scope, location, and specific purpose of the proposed work. ARPA also fosters the exchange of information about archaeological resources between governmental agencies, the professional archaeological community, and private individuals. ARPA is implemented by regulations found in 43 CFR Part 7.

The National Historic Preservation Act (NHPA) of 1966 sets forth national policy to identify and preserve properties of state, local, and national significance. The NHPA establishes the Advisory Council on Historic Preservation (AHP), State Historic Preservation Officers (SHPOs), and the National Register of Historic Places (NRHP). AHP advises the President, Congress, and Federal agencies on historic preservation issues. Section 106 of the NHPA directs Federal agencies to take into account effects of their undertakings (actions and authorizations) on properties included in or eligible for the NRHP. Section 110 sets inventory, nomination, protection, and preservation responsibilities for federally owned cultural properties. Section 106 of the act is implemented by regulations of the AHP, 36 CFR Part 800. Agencies should coordinate studies and documents prepared under Section 106 with NEPA where appropriate. However, NEPA and NHPA are separate statutes and compliance with one does not constitute compliance with the other. For example, actions which qualify for a categorical exclusion under NEPA might still require Section 106 review under NHPA. It is the responsibility of the agency

official to identify properties in the area of potential effects, and whether they are included or eligible for inclusion in the NRHP. Section 110 of the NHPA requires Federal agencies to identify, evaluate, and nominate historic property under agency control to the NRHP.

The Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 establishes rights of American Indian tribes to claim ownership of certain “cultural items,” defined as Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony, held or controlled by Federal agencies. Cultural items discovered on Federal or tribal lands are, in order of primacy, the property of lineal descendants, if these can be determined, and then the tribe owning the land where the items were discovered or the tribe with the closest cultural affiliation with the items. Discoveries of cultural items on Federal or tribal land must be reported to the appropriate American Indian tribe and the Federal agency with jurisdiction over the land. If the discovery is made as a result of a land use, activity in the area must stop and the items must be protected pending the outcome of consultation with the affiliated tribe.

EO 11593, *Protection and Enhancement of the Cultural Environment* (May 13, 1971) directs the Federal government to provide leadership in the preservation, restoration, and maintenance of the historic and cultural environment. Federal agencies are required to locate and evaluate all Federal sites under their jurisdiction or control which may qualify for listing on the NRHP. Agencies must allow the ACHP to comment on the alteration, demolition, sale, or transfer of property which is likely to meet the criteria for listing as determined by the Secretary of the Interior in consultation with the SHPO. Agencies must also initiate procedures to maintain federally owned sites listed on the NRHP.

EO 13007, *Indian Sacred Sites* (May 24, 1996) provides that agencies managing Federal lands, to the extent practicable, permitted by law, and not inconsistent with agency functions, shall accommodate American Indian religious practitioners’ access to and ceremonial use of American Indian sacred sites, shall avoid adversely affecting the physical integrity of such sites, and shall maintain the confidentiality of such sites. Federal agencies are responsible for informing tribes of proposed actions that could restrict future access to or ceremonial use of, or adversely affect the physical integrity of, sacred sites.

EO 13287, *Preserve America* (March 3, 2003) orders Federal agencies to take a leadership role in protection, enhancement, and contemporary use of historic properties owned by the Federal government, and promote intergovernmental cooperation and partnerships for preservation and use of historic properties. EO 13287 established new accountability for agencies with respect to inventories and stewardship.

Socioeconomics and Environmental Justice

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (February 11, 1994) directs Federal agencies to make achieving environmental justice part of their mission. Agencies must identify and address the adverse human health or environmental effects that its activities have on minority and low-income populations, and develop agency-wide environmental justice strategies. The strategy must list “programs, policies, planning and public participation processes, enforcement, and/or rulemakings related to human health or the environment that should be revised to promote enforcement of all health and environmental statutes in areas with minority populations and low-income populations, ensure greater public participation, improve research and data collection relating to the health of and environment of minority populations and low-income populations, and identify differential patterns of consumption of natural resources among minority populations and low-income populations.” A copy of the strategy and progress reports must be provided to the Federal Working Group on Environmental Justice. Responsibility for compliance with EO 12898 is with each Federal agency.

Hazardous Materials and Waste

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 authorizes USEPA to respond to spills and other releases of hazardous substances to the environment, and authorizes the National Oil and Hazardous Substances Pollution Contingency Plan. CERCLA also provides a Federal “Superfund” to respond to emergencies immediately. Although the “Superfund” provides funds for cleanup of sites where potentially responsible parties cannot be identified, USEPA is authorized to recover funds through damages collected from responsible parties. This funding process places the economic burden for cleanup on polluters.

The Pollution Prevention Act (PPA) of 1990 encourages manufacturers to avoid the generation of pollution by modifying equipment and processes, redesigning products, substituting raw materials, and making improvements in management techniques, training, and inventory control. Consistent with pollution prevention principles, EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management* (January 24, 2007 [revoking EO 13148]) sets a goal for all Federal agencies that promotes environmental practices, including acquisition of biobased, environmentally preferable, energy-efficient, water-efficient, and recycled-content products, and use of paper of at least 30 percent post-consumer fiber content. In addition, EO 13423 sets a goal that requires Federal agencies to ensure that they reduce the quantity of toxic and hazardous chemicals and materials acquired, used, or disposed of, increase diversion of solid waste as appropriate, and maintain cost effective waste prevention and recycling programs in their facilities. Additionally, in *Federal Register* Volume 58 Number 18 (January 29, 1993), CEQ provides guidance to Federal agencies on how to “incorporate pollution prevention principles, techniques, and mechanisms into their planning and decision making processes and to evaluate and report those efforts, as appropriate, in documents pursuant to NEPA.”

The Resource Conservation and Recovery Act (RCRA) of 1976 is an amendment to the Solid Waste Disposal Act. RCRA authorizes USEPA to provide for “cradle-to-grave” management of hazardous waste and sets a framework for the management of nonhazardous municipal solid waste. Under RCRA, hazardous waste is controlled from generation to disposal through tracking and permitting systems, and restrictions and controls on the placement of waste on or into the land. Under RCRA, a waste is defined as hazardous if it is ignitable, corrosive, reactive, toxic, or listed by USEPA as being hazardous. With the Hazardous and Solid Waste Amendments (HSWA) of 1984, Congress targeted stricter standards for waste disposal and encouraged pollution prevention by prohibiting the land disposal of particular wastes. The HSWA amendments strengthen control of both hazardous and nonhazardous waste and emphasize the prevention of pollution of groundwater.

The Superfund Amendments and Reauthorization Act (SARA) of 1986 mandates strong clean-up standards and authorizes the USEPA to use a variety of incentives to encourage settlements. Title III of SARA authorizes the Emergency Planning and Community Right to Know Act (EPCRA), which requires facility operators with “hazardous substances” or “extremely hazardous substances” to prepare comprehensive emergency plans and to report accidental releases. If a Federal agency acquires a contaminated site, it can be held liable for clean-up as the property owner/operator. A Federal agency can also incur liability if it leases a property, as the courts have found lessees liable as “owners.” However, if the agency exercises due diligence by conducting a Phase I Environmental Site Assessment, it can claim the “innocent purchaser” defense under CERCLA. According to Title 42 U.S. Code (U.S.C.) 9601(35), the current owner/operator must show it undertook “all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice” before buying the property to use this defense.

The Toxic Substance Control Act (TSCA) of 1976 consists of four titles. Title I established requirements and authorities to identify and control toxic chemical hazards to human health and the environment.

TSCA authorized USEPA to gather information on chemical risks, require companies to test chemicals for toxic effects, and regulate chemicals with unreasonable risk. TSCA also singled out polychlorinated bi-phenyls (PCBs) for regulation, and, as a result, PCBs are being phased out. PCBs are persistent when released into the environment and accumulate in the tissues of living organisms. They have been shown to cause adverse health effects on laboratory animals and can cause adverse health effects in humans. TSCA and its regulations govern the manufacture, processing, distribution, use, marking, storage, disposal, clean-up, and release reporting requirements for numerous chemicals like PCBs. TSCA Title II provides statutory framework for “Asbestos Hazard Emergency Response,” which applies only to schools. TSCA Title III, “Indoor Radon Abatement,” states indoor air in buildings of the United States should be as free of radon as the outside ambient air. Federal agencies are required to conduct studies on the extent of radon contamination in buildings they own. TSCA Title IV, “Lead Exposure Reduction,” directs Federal agencies to “conduct a comprehensive program to promote safe, effective, and affordable monitoring, detection, and abatement of lead-based paint and other lead exposure hazards.” Further, any Federal agency having jurisdiction over a property or facility must comply with all Federal, state, interstate, and local requirements concerning lead-based paint.

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APPENDIX C

INTERAGENCY COORDINATION AND PUBLIC INVOLVEMENT



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR MOBILITY COMMAND

08 JUN 2006

MEMORANDUM FOR: SEE DISTRIBUTION LIST

FROM: HQ AMC/A7P
507 Symington Drive
Scott AFB IL 62225-5022

SUBJECT: Description of Proposed Action and Alternatives (DOPAA) for Installation Development (ID) at McConnell Air Force Base (AFB), Kansas

1. The Air Mobility Command is preparing an Environmental Assessment (EA) of Installation Development (ID) at McConnell AFB. Consistent with the McConnell Air Force Base Commander's Vision, McConnell AFB proposes numerous future installation projects to ensure McConnell AFB can meet its required operations for the future national security of the United States. Under the Proposed Action, numerous projects such as capital improvements, utilities upgrades, community living upgrades, infrastructure upgrades, new facilities, demolition of aging facilities, and recreation would be planned for the next five years. The DOPAA is included with this correspondence.
2. The environmental impact analysis process for the Proposed Action and the No Action Alternative is being conducted by the Air Mobility Command in accordance with the Council on Environmental Quality guidelines pursuant to the requirements of the National Environmental Policy Act of 1969. In accordance with Executive Order 12372, *Intergovernmental Review of Federal Programs*, we request your participation by reviewing the attached DOPAA and solicit your comments concerning the proposal and any potential environmental consequences. Also enclosed is the distribution list of those Federal, state, and local agencies that have been contacted. If there are any additional agencies that you feel should review and comment on the proposal, please include them in your distribution of this letter and the attached materials.
3. Please provide any comments or information directly to HQ AMC/A7P, 507 Symington Dr., Scott AFB, IL 62225-5022 within 30 calendar days upon receipt of this notification.
4. If members of your staff have any questions, our point of contact is Mr. Mostafa Massoud, HQ AMC/A7PC, (618) 229-0911, or e-mail to mostafa.masseoud@scott.af.mil.

MICHAEL W. HUTCHISON, Colonel, USAF
Chief, Plans and Programs Division
Directorate of Installations & Mission Support

Attachment:
DOPAA

DISTRIBUTION: (listed on next page)

AMC—GLOBAL REACH FOR AMERICA

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**Installation Development Environmental Assessment
McConnell Air Force Base, Kansas**

Interagency and Intergovernmental Coordination for Environmental Planning List

Federal

Senator Sam Brownback
245 N. Waco
Suite 240
Wichita, KS 67202

Senator Pat Roberts
155 N Market Street
Suite 120
Wichita, KS 67202

Congressman Todd Tiahrt
155 North Market St.
Suite 400
Wichita, KS 67202

Joe Cothorn
Environmental Review Coordinator
USEPA, Region VII
901 North 5th Street
Kansas City, KS 66101

USDA Forest Service
Rocky Mountain Region
740 Simms St
Golden, CO 80401

DOT Regional Office Building
FAA Central Region
901 Locust St
Kansas City, MO
64106-2641

State

Governor Kathleen Sebelius
Office of the Governor
Capitol, 300 SW 10th Ave., Ste. 212S
Topeka, KS 66612-1590

Mike LeValley
Kansas Field Office,
U.S. Fish Wildlife Service
315 Houston Street, Suite E
Manhattan, Kansas 66502

Donald Betts
Kansas Senate Senator
1505 N Matlock
Wichita, KS 67208

Delia Garcia
Kansas House Representative
PO Box 48283
Wichita, KS 67201

Ms. Jennie Chinn, SHPO, Executive Director
Kansas State Historical Society
6425 Southwest 6th Avenue
Topeka, KS 66615-1099

Dr. Ronald Hammersmidt, Ph.D.
Director, Division of Environment
Kansas Department of Health and Environment
Curtis Building, Suite 400
Topeka, Kansas 66612-1367

Local

Carlos Mayans
City Council, Mayor
City Hall, 1st Floor
MS – 1-135
455 N. Main
Wichita, KS 67202

Irene Hart
Sedgwick County
Community Development
510 N. Main
Wichita, KS 67203

Bill Buchanan
Sedgwick County
Manager's Office
525 N. Main, #343
Wichita, KS 67203

John Schlegel
Director of Planning Wichita Sedgwick County
City Hall, 10th floor
455 N. Main
Wichita, Kansas 67202-1688

Kay Johnson
Director City of Wichita
Environmental Services
1900 E. 9th St.
Wichita, KS 67214



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Kansas Ecological Services Field Office
2609 Anderson Avenue
Manhattan, Kansas 66502-6172

July 20, 2006

Mostafa Masseoud
HQ AMC/A7PC
507 Symington Drive
Scott AFB, IL 62225-5022

RE: Installation Development - McConnell AFB, KS FWS Tracking # 2006-P-0416

Dear Mr. Masseoud:

We have reviewed the Environmental Assessment (EA), received June 22, 2006 for the Installation Development (ID) at McConnell AFB. The development will ensure the continuing capability of McConnell AFB to support all present and future assignments necessary to meet national security objectives and other mission requirements. The types of activities included as part of the proposed action involve site preparation; construction of new facilities; facility upgrades; repair and alterations of existing facilities; installation infrastructure replacement and upgrade; replacement and expansion of facilities; landscaping; maintenance and upgrade of the storm drainage system, sewer system and other utilities; AT/FP improvements; and demolition of facilities. The following comments are provided by the USFWS for your consideration.

General Comments

The U.S. Fish and Wildlife Service (USFWS) appreciates the coordination between the Service and the U.S. Air Force throughout the development of this EA, and value efforts made to address our concerns.

It is our assessment based on the size and nature of the facility, there is little habitat suitable for federally-listed species which occur in Kansas. Surveys for listed and candidate species conducted by the Kansas Biological Survey in 1994 and in 1999 failed to document these species on McConnell AFB. There should be no significant adverse impacts to fish and wildlife resources, including threatened and endangered species.

Under the Migratory Bird Treaty Act (MBTA), construction activities in prairies, wetlands, stream and woodland habitats that would otherwise result in the taking of migratory birds, eggs, young, and/or active nests should be avoided. Although the

provisions of MBTA are applicable year-round, most migratory bird nesting activity in Kansas occurs during the period of April 1 to July 15, although some migratory birds are known to nest outside this period. If the proposed construction project may result in the take of nesting migratory birds, the USFWS recommends a field survey during the nesting season of the affected habitats and structures to determine the presence of active nests. Our office should be contacted immediately for further guidance if a field survey identifies the existence of one or more active bird nests that cannot be avoided temporally or spatially by the planned construction activities.

If a permit from the Corps of Engineers will be required for any of the proposed projects, the USFWS will be given the opportunity to review the public notice on the proposed permit action and will provide additional comments at that time. Section 404 guidelines require the sequence of avoidance of impacts, minimization of impacts and compensation for unavoidable impacts. When we review the public notice, we will request information on alternatives considered, how the project avoided and minimized impacts to aquatic ecosystems, and the compensatory mitigation proposal, if one is required by the Corps.

Thank you for the opportunity to comment on this proposed project. If you have questions regarding these comments, please contact Michele McNulty of the Kansas Ecological Services Office, at 785-539-3474 X 106.

Sincerely,



Michael J. LeValley
Field Supervisor

cc: KDWP, Pratt, KS (Environmental Services)
Connie Young-Dubovsky, R6, RO, (ES)



SEDGWICK COUNTY, KANSAS
DIVISION OF COMMUNITY DEVELOPMENT

IRENE HART
Director

510 N. MAIN • ROOM 602 • WICHITA, KANSAS 67203 • TELEPHONE: (316) 660-9863

June 26, 2006

HQ AMC/A7P
507 Symington Drive
Scott AFB IL 62225-5022

TO WHOM IT MAY CONCERN:

Sedgwick County has reviewed the DOPAA for McConnell AFB and has no comments concerning the proposal or any potential environmental consequences.

We have found McConnell AFB to be a responsible member of our community, and encourage the upgrades as proposed in the document.

Thank you for allowing us the opportunity to review the proposal.

Sincerely,

Irene Hart, Director

Cc: William P. Buchanan, Sedgwick County Manager
John Schlegel, Director, MAPD

FAX: (316) 383-7696 • EMAIL: ihart@sedgwick.gov

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K A N S A S

RODERICK L. BREMBY, SECRETARY

DEPARTMENT OF HEALTH AND ENVIRONMENT

KATHLEEN SEBELIUS, GOVERNOR

August 15, 2006

Michael W. Hutchison, Colonel, USAF
Chief, Plans and Programs Division
Directorate of Installations & Missions Support

Re: Description of Proposed Action and Alternatives for Installation Development
at McDonnell Air Force Base, Kansas

Please see the following comments submitted by Mr. Bill Bider, Bureau of Waste Management.

Any non-hazardous waste generated through the demolition of buildings must be disposed of in a landfill permitted by the Department of Health and Environment. The landfill may be either a construction & demolition (C & D) landfill or a municipal solid waste landfill. If the demolition waste meets the definition of "clean rubble," it may be disposed of as fill in non-permitted areas provided the disposal activity does not present impacts to human health or the environment. Local zoning rules may apply to the placement of "clean rubble" in non-permitted areas. Clean rubble includes inert materials such as dirt, concrete, asphalt and bricks. On-site disposal of C & D waste may be approved in some cases if certain conditions are satisfied. If on-site disposal is desired, please contact Mr. Dennis Degner in the Bureau of Waste Management at (785) 296-1601 or at ddegner@kdhe.state.ks.us for information and to implement the approval process.

Sincerely,

A handwritten signature of Donna Fisher.

Donna Fisher, Receptionist
Division of Environment

WLB:df

DIVISION OF ENVIRONMENT
CURTIS STATE OFFICE BUILDING, 1000 SW JACKSON ST., STE. 400, TOPEKA, KS 66612-1367
Voice 785-296-1535 Fax 785-296-8464 <http://www.kdheks.gov>



K A N S A S

RODERICK L. BREMBY, SECRETARY

DEPARTMENT OF HEALTH AND ENVIRONMENT

KATHLEEN SEBELIUS, GOVERNOR

August 15, 2006

Colonel Michael W. Hutchinson
Department of the Air Force
HQ AMC/A7P
507 Symington Drive
Scott AFB, IL 62225-5022

Dear Col. Hutchinson,

This letter is in response to your letter received August 3, 2006 requesting comments regarding the proposed renovation and demolition activities for various building, at McConnell AFB, in Kansas. This letter concerns asbestos-containing materials which may be present in older buildings.

Many of these older structures contain building materials which may contain asbestos. Common building materials which may be asbestos-containing materials (ACM) that are found in older public and commercial buildings include sprayed-on acoustical ceiling plasters, floor coverings such as vinyl tile and linoleum, siding, roof shingles and associated felts, as well as thermal system insulation on plumbing, boilers and steam piping, and duct work of heating and air-conditioning equipment.

As asbestos was used in more than 3600 different building materials, it is important to identify these materials prior to the start of the renovation or demolition activities. To determine if asbestos-containing materials are present in the building, an inspection for asbestos-containing materials by a trained and accredited asbestos inspector is required by federal EPA asbestos control regulations. Enclosed with this letter is a listing of firms which provide asbestos-related consultation services, including accredited inspections, for your consideration.

Asbestos-containing materials (ACM) are divided into two main categories. Non friable (hard) asbestos-containing materials are not easily damaged and do not readily release airborne asbestos fibers. Non friable ACM may include square floor tile, asphaltic roofing, and asbestos/cement (A/C) siding and shingles. These materials can become friable, and release airborne asbestos fibers, if subjected to sanding, grinding, sawing, crushing, or pulverizing to a powder.

Friable (soft) asbestos-containing materials are easily damaged and, when disturbed, can readily release airborne asbestos fibers. Friable ACM may include sprayed-on acoustical ceiling plasters, thermal insulation on heating and cooling systems, and resilient (no-wax) linoleum. If friable ACM is to be removed or disturbed by the renovation or demolition activities, they must be removed first by specially trained workers.

In Kansas, the removal of friable (soft) ACM must be performed by a Kansas licensed asbestos abatement contractor. These licensed contractors use certified asbestos workers, specialized equipment, and specific work procedures to remove friable ACM. I have enclosed a current listing of Kansas licensed asbestos abatement contractors, if friable ACM is to be removed during the construction activities of this renovation or demolition project.

DIVISION OF ENVIRONMENT
Bureau of Air & Radiation

Radiation and Asbestos Control Section

CURTIS STATE OFFICE BUILDING, 1000 SW JACKSON ST., STE 310, TOPEKA, KS 66612-1366
Voice 785-296-1560 Fax 785-296-0984 <http://www.kdhe.ks.gov/asbestos>

Written notification of the intent to demolish public or commercial building also is required under the EPA asbestos NESHAP regulations (40 CFR Part 61.145). A Demolition Notification Form must be completed for each building or affected structure, and the completed form sent to KDHE, delivered or postmarked **at least 10 working days prior to the start of demolition activities**. In addition, if more than one house is being removed on any given block, or the house has been used for commercial purposes at any time, these houses will also require written notification prior to the start of demolition under these regulations. Enclosed is the Asbestos Demolition Notification Form (ET-ASB10) for reporting intent to perform demolition for your use.

If you have any additional questions regarding asbestos related issues, please contact me at (785) 296-1689.

Sincerely,



Scott C. Bangert
Environmental Scientist
Radiation and Asbestos Control Section
Bureau of Air and Radiation

SCB:sp

Enclosures

DIVISION OF ENVIRONMENT
Bureau of Air & Radiation
Radiation and Asbestos Control Section
CURTIS STATE OFFICE BUILDING, 1000 SW JACKSON ST., STE 310, TOPEKA, KS 66612-1366
Voice 785-296-1560 Fax 785-296-0984 <http://www.kdhe.ks.gov/asbestos>

Postmark Date _____
For Office Use Only

Form ET-ASB10 (11/04)
Page 1

KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT ASBESTOS DEMOLITION NOTIFICATION FORM

GENERAL INSTRUCTIONS: This Asbestos Demolition Notification Form is to be completed and submitted before a building or structure is to be demolished. **NOTE:** IF THE BUILDING OR STRUCTURE CONTAINS FRIABLE ASBESTOS-CONTAINING MATERIALS, THE ASBESTOS NOTIFICATION FORM (ET-ASB8) MUST BE COMPLETED AND SUBMITTED TO THE DEPARTMENT. THIS ASBESTOS DEMOLITION FORM WILL NOT BE ACCEPTED FOR REPORTING THE REMOVAL OF FRIABLE ASBESTOS-CONTAINING MATERIALS FROM BUILDINGS SCHEDULED FOR DEMOLITION. This form is to be received by the Department not less than 10 working days before the demolition project is scheduled to start. Any notification that is incomplete or any notification indicating site activities to be in violation of applicable regulations will be considered an invalid notification.

Separate notifications must be provided for each building or other individual facility where demolition of said building or facility is to be demolished. Additional copies of this form should be reproduced as needed.

Under most circumstances, the removal of Category I nonfriable asbestos-containing materials will not be required prior to demolition unless the building is to be burned or the materials are considered to be friable. Category II nonfriable asbestos-containing materials must be removed prior to demolition if the materials would be subject to crushing, crumbling or pulverizing during the process of demolition of the building or structure.

Mail the original, signed and completed form to: KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT
ASBESTOS CONTROL SECTION
1000 SW JACKSON, SUITE 310
TOPEKA, KANSAS 66612-1366
(785) 296-6024

PART A AUTHENTICATION

I hereby certify that, to the best of my knowledge and understanding, the information provided is complete, true and correct.

Print or Type Name _____ Title _____

Signature _____ Date _____

Name of Firm _____

Telephone No. (_____) _____

PART B PROJECT DESCRIPTION

Building/Structure Owner _____

Owner Address: Street _____

City _____ State _____ Zip _____

Owner Contact: Name _____ Telephone No. (_____) _____

Building Address: Street _____ City _____ County _____

Present Use: _____ Past Use: _____ Age of Building: _____

Building Floor Space: (sq ft) _____ No. of Floors: _____

Scheduled Demolition Start _____ / _____ / _____ Completion _____ / _____ / _____

Describe how building will be demolished: _____

PART C INSPECTION INFORMATION

Was an inspection for asbestos conducted for this project? Yes No

If yes, provide the following information:

Inspector Name _____ Date Inspected _____

Address _____ City _____ State _____

Telephone No. (_____) _____

Accreditation by _____ Exp. Date _____

Provide method used to detect the presence of asbestos material, including analytical methods: _____

PART D DEMOLITION CONTRACTOR INFORMATION

Contractor: _____

Address: _____

City: _____ State: _____ Zip: _____

Contact: _____ Telephone No. (_____) _____

PART E IDENTIFIED ASBESTOS CONTAINING MATERIALS

Nonfriable Category I: _____ s.f. _____ l.f. _____ c. yd.

Nonfriable Category II: _____ s.f. _____ l.f. _____ c. yd.

Friable Asbestos _____ s.f. _____ l.f. _____ c. yd.

If friable asbestos-containing materials are present state who will be removing the material and when it will be removed: _____

If nonfriable Category II asbestos-containing materials are present, briefly state the work practices intended to be used to insure these materials do not become friable (crushed, crumbled, or pulverized):

Is building or structure to be burned? Yes No If yes, attach a copy of the required approval letter from KDHE. NOTE: All asbestos-containing materials and any additional materials, as required by the Department, must be removed prior to burning.

Was demolition ordered by a Local Government because the structure is structurally unsafe and in danger if imminent collapse? Yes No If yes, attach copy of the order

PART F WASTE DISPOSAL

Disposal Site: _____

KDHE Licensed Municipal Solid Waste (Sanitary) or Construction/Demolition (C&D) Landfill Permit Number _____

Location: City _____ County _____ State _____

Waste Transporter: _____

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The Notice of Availability below was published on page 8B of the *Wichita Eagle* on April 4, 2007. Publication of the Notice of Availability initiated a 30-day public review period of the Draft EA and Draft FONSI. Copies of these documents were available in the Wichita Public Library. Additionally, copies of these documents were distributed for interagency review. No public comments were received, but the following pages contain several agency responses. Agency comments were considered and incorporated into the EA.

Notice of Availability

**Draft Finding of No Significant Impact for the
Environmental Assessment of
Installation Development at McConnell AFB, Kansas**

McConnell Air Force Base, Kansas and the United States Air Force Air Mobility Command are proposing to issue a Finding of No Significant Impact (FONSI) based on an Environmental Assessment (EA) of Installation Development at McConnell AFB. The analysis considered potential effects of the proposed action on eleven resource areas: noise, land use, air quality, safety, geological resources, water resources, biological resources, cultural resources, socioeconomic resources and environmental justice, infrastructure, and hazardous materials and waste management. The results, as found in the EA, show that the future proposed installation development projects would not have a significant impact on the environment—indicating that a FONSI would be appropriate. An Environmental Impact Statement should not be necessary to implement the proposed action.

Copies of the Draft FONSI and the EA showing the analysis are available for review until May 4, 2007 at the Wichita Public Library, located at 223 S. Main, Wichita, KS 67202. Address written comments to Mr. Donald Campbell, 22 CES/CEV, 53000 Hutchinson Street, Suite 109, McConnell AFB, KS 67221-3617.

The following Privacy Advisory appeared on the Cover Sheet of the Draft EA:

Privacy Advisory

Your comments on this document are requested. Letters or other written comments provided may be published in the EA. Comments will normally be addressed in the EA and made available to the public. Any personal information provided will be used only to identify your desire to make a statement during the public comment period or to fulfill requests for copies of the EA or associated documents. Private addresses will be compiled to develop a mailing list for those requesting copies of the EA. However, only the names of the individuals making comments and specific comments will be disclosed; personal home addresses and phone numbers will not be published in the EA.

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KANSAS

Kansas State Historical Society
Patrick Zollner, Director, Cultural Resources Division

KATHLEEN SEBELIUS, GOVERNOR

April 27, 2007

Mr. Donald Campbell
Chief, Environmental Flight
22 CES/CEV
53000 Hutchinson St., Suite 109
McConnell AFB, KS 67221-3617

Re: Draft Environmental Assessment of Installation Development, McConnell Air Force Base, Kansas

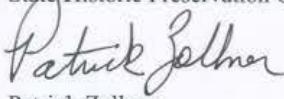
Dear Mr. Campbell:

We have received and reviewed the Draft Environmental Assessment of Installation Development for McConnell Air Force Base. Our staff concurs with the assessment on Cultural Resources, especially in regards that the proposed addition to Hangar 1106 is a potential adverse effect. We look forward to consulting with you on these projects in the future.

If you have any questions regarding these comments, please contact Patrick Zollner at 785-272-8681, ext 217.

Sincerely,

Jennie Chinn
State Historic Preservation Officer



Patrick Zollner
Director, Cultural Resources Division
Deputy State Historic Preservation Officer

6425 SW Sixth Avenue • Topeka, KS 66615-1099
Phone 785-272-8681 Ext. 217 • Fax 785-272-8682 • Email pzollner@kshs.org • TTY 785-272-8683
www.kshs.org

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Kathleen Sebelius, Governor
Roderick L. Bremby, Secretary

DEPARTMENT OF HEALTH
AND ENVIRONMENT

Division of Environment

www.kdheks.gov

MEMORANDUM

TO: Donna Fisher

JM

CC: Fred Molloy → File: McConnell Air Force Base, C2-087-03010-1

FROM: Ruby Crysler

DATE: May 10, 2007

RE: Environmental Audit Requested by Department of the Air Force, 22nd Civil Engineer Squadron (AMC) for various properties location within McConnell Air Force Base, Wichita, Kansas.

The Kansas Department of Health and Environment (KDHE), Bureau of Environmental Remediation (BER), Assessment and Restoration Section has located numerous CERCLA sites (seven Environmental Restoration Program Sites and 104 Solid Waste Management Units) in the vicinity of the property in question. From a cursory review of the Draft Environmental Assessment (EA) of Installation Development Report, several proposed projects such as the demolition of Buildings 1090 and 1091, the construction of the Forward Logistics Center, and the STRAPP Relocation have already been identified as potentially interfering with environmental restoration projects. Therefore, the projects proposed in the EA Report must be taken on a case-by-case basis in consultation with USEPA and KDHE as environmental investigations progress on the installation.

- McConnell Air Force Base (parent site) C2-087-03010 (Section 03, Township 20, Range 20)
- McConnell Air Force Base Spill Site 01, C2-087-71370
- McConnell Air Force Base Spill Site 03, C2-087-71466
- McConnell Air Force Base Fire Training Area 06, C2-087-71467
- McConnell Air Force Base Fire Training Area 07, C2-087-71468
- McConnell Air Force Base Land Fill 11, C2-087-71469
- McConnell Air Force Base Spill Site 14, C2-087-71888
- McConnell Air Force Base Underground Storage Tank Release Site 17, C2-087-71889
- McConnell Air Force Base Solid Waste Management Unit (SWMU) 107, Hardfill

BUREAU OF ENVIRONMENTAL REMEDIATION
CURTIS STATE OFFICE BUILDING, 1000 SW JACKSON ST., STE. 410, TOPEKA, KS 66612-1367
Voice 785-291-3249 Fax 785-296-4823 E-Mail rcrysler@kdhe.state.ks.us

May 10, 2007
Ms. Donna Fisher
Environmental Audit on McConnell Air Force Base
Page 2

Area #4, C2-087-71890

- McConnell Air Force Base SWMU 113, Pathological Incinerator, C2-087-71359
- McConnell Air Force Base SWMU 114, Classified Waste Incinerator, C2-087-71357
- McConnell Air Force Base SWMU 121, Oil Water Separator #1, C2-087-71360
- McConnell Air Force Base SWMU 122, Oil Water Separator #2, C2-087-71347
- McConnell Air Force Base SWMU 123, Oil Water Separator #4, C2-087-71355
- McConnell Air Force Base SWMU 124, Oil Water Separator #5, C2-087-71353
- McConnell Air Force Base SWMU 125, Oil Water Separator #6, C2-087-71362
- McConnell Air Force Base SWMU 126, Oil Water Separator #7, C2-087-71364
- McConnell Air Force Base SWMU 127, Oil Water Separator #8, C2-087-71363
- McConnell Air Force Base SWMU 128, Oil Water Separator #9, C2-087-71365
- McConnell Air Force Base SWMU 137, Oil Water Separator #18, C2-087-71366
- McConnell Air Force Base SWMU 140, Oil Water Separator #21, C2-087-71352
- McConnell Air Force Base SWMU 142, Oil Water Separator #23, C2-087-71356
- McConnell Air Force Base SWMU 145, Oil Water Separator #26, C2-087-71348
- McConnell Air Force Base SWMU 148, Building 426 Oil Water Separator, C2-087-71361
- McConnell Air Force Base SWMU 150, Mud Pits, C2-087-71354
- McConnell Air Force Base SWMU 151, Oil Water Separator Mud Pit #26, C2-087-71349
- McConnell Air Force Base SWMU 160, Former DRMO Storage Yard, C2-087-71891
- McConnell Air Force Base SWMU 183, Oil Water Separator #K5, C2-087-71367
- McConnell Air Force Base SWMU 184, Oil Water Separator #K6, C2-087-71369
- McConnell Air Force Base SWMU 186, Oil Water Separator #K8, C2-087-71368
- McConnell Air Force Base SWMU 198, Silver Recovery Unit at Building 250 Dental X-Ray Shop, C2-087-71358
- McConnell Air Force Base SWMU 202, Former Oil Water Separator inside Building 692, C2-087-71350
- McConnell Air Force Base SWMU 204, Oil Water Separator #, C2-087-71351
- McConnell Air Force Base SWMU 207, Carbon Tetrachloride Plume, C2-087-71892
- McConnell Air Force Base SWMU 208, Building #2, C2-087-71896
- The remaining SWMUs have not been assigned Identified Sites List numbers at this time.

Staff from 22nd Civil Engineer Squadron are welcome to come view the KDHE-BER files in accordance with the Kansas Open Records Act. If you have any questions, please contact Ruby Crysler at (785) 291-3249 or at rcrysler@kdhe.state.ks.us.



DEPARTMENT OF HEALTH
AND ENVIRONMENT

Division of Environment

Kathleen Sebelius, Governor
Roderick L. Bremby, Secretary

www.kdheks.gov

MEMORANDUM

DATE: April 18, 2007
TO: Donna Fisher, Receptionist - DOE Director's Office
FROM: Donald R. Carlson
SUBJECT: Agency Review Comments
McConnell Air Force Base - Wichita, KS

I have no objection to the proposal but offer the following comments for review and consideration:

- Any construction activity which disturbs 1 acre or more is required to file a National Pollutant Discharge Elimination System (NPDES) permit application for stormwater runoff resulting from construction activities. The project owner (the party responsible for the project) must obtain authorization from KDHE to discharge stormwater runoff associated with construction activities prior to commencing construction. The Kansas construction stormwater general permit, a Notice of Intent (application form), a frequently asked questions file and supplemental materials are on-line on the KDHE Stormwater Program webpage at www.kdhe.state.ks.us/stormwater. Answers to questions regarding or additional information concerning construction stormwater permitting requirements can be obtained by calling (785) 296-5549.
- Any modification to the conditions addressed in the current NPDES permit (increased flows, new outfalls, etc.) for the facility resulting from the proposed "Ramp Deicing Improvements" should be coordinated with KDHE early in the project.

CURTIS STATE OFFICE BUILDING, 1000 SW JACKSON ST., STE. 400, TOPEKA, KS 66612-1367
Voice 785-296-5547 Fax 785-296-5509

Search Results

search results for "field:ProjectName contains McConnell"

52 documents found

Search for field PProjectName contains McConnell

Options Sort results by relevance
Return a maximum of results.
 Use word variants ("cat" will also find "cats")
 Fuzzy search

<http://heasprod/Ber/Ber.nsf/SortLeakingTankV2?SearchView&SearchMax=1000&SearchWV=TRUE&Query=field%20PProjectName%20con...> 4/18/2007

AGENCY REVIEW TRANSMITTAL FORM

Comments by: KDHE

Transmittal Date: March 11, 2007

This form provides notification and the opportunity for your agency to review and comments on this proposed project as required by Executive Order 12372. Review Agency, please complete Parts II and III as appropriate and return to contact person listed below. Your prompt response will be appreciated.

RETURN TO: Mr. Donald Campbell,
22 CES/CEV
53000 Hutchinson Street, Suite 109
McConnell AFB, KS 67221-3617

PART I

REVIEW AGENCIES/COMMISSION

<input type="checkbox"/> Aging	<input type="checkbox"/> Education	<input type="checkbox"/> State Forester
<input type="checkbox"/> Agriculture	<input type="checkbox"/> Geological Survey, KS	<input type="checkbox"/> Transportation
<input type="checkbox"/> Biological Survey	<input checked="" type="checkbox"/> Health & Environment	<input type="checkbox"/> Water Office, KS
<input type="checkbox"/> Conservation Commission	<input type="checkbox"/> Historical Society	<input type="checkbox"/> Wildlife & Parks
<input type="checkbox"/> Corporation Commission	<input type="checkbox"/> Social & Rehabilitation	<input type="checkbox"/> Commerce

PART II

AGENCY REVIEW COMMENTS

COMMENTS: (Attach additional sheet if necessary) McConnell Air Force Base, Wichita, KS
Please see the enclosed information submitted by Ms. Ruby Crysler and LUST reports from Ms. Barbara Jordan.
Mr. Don Carlson has enclosed his comments pertaining to this project.

PART III

RECOMMENDED ACTION COMMENTS

<input checked="" type="checkbox"/> Clearance of the project should be granted.	<input type="checkbox"/> Clearance of the project should not be delayed but the Applicant should (in the final application) address and clarify the question or concerns indicated above.
<input type="checkbox"/> Clearance of the project should not be granted.	<input type="checkbox"/> Request the opportunity to review final application prior to submission to the federal funding agency.
<input type="checkbox"/> Clearance of the project should be delayed until the issues or questions above have been clarified.	
<input type="checkbox"/> Request a State Process Recommendation in concurrence with the above comments.	

DIVISIONS/ AGENCY/ COMMISSION

Reviewer's Name: Ronald F. Hammerschmidt Date: March 11, 2007

Organization: Kansas Department of Health & Environment
Ronald F. Hammerschmidt, Ph.D.
Director, Division of Environment
Curtis State Office Building
1000 SW Jackson St., Suite 400
Topeka, KS 66612-1367

RFH:df

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Kansas Ecological Services Field Office
2609 Anderson Avenue
Manhattan, Kansas 66502-6172



May 17, 2007

Donald Campbell, YF-02
Chief, Environmental Flight
22 CES/CEV
53000 Hutchinson Street, Suite 109
McConnell AFB, KS 67221-3617

RE: EA Installation Development McConnell AFB, KS FWS Tracking # 2007-B-0531

Dear Mr. Campbell:

This is in response to your April 5, 2007 letter which we received on April 19, 2007 requesting comment on the Draft EA and FONSI which proposes to implement installation development actions as found in the community of all existing wing-approved plans for the next five years. The action would enable McConnell AFB to meet installation development requirements and therefore ensure the readiness for future national defense missions.

Based on our review of the draft Finding of No Significant Impact, we concur with the determination that these actions will not likely adversely affect federally-listed threatened or endangered species or have detrimental impacts to other trust fish and wildlife resources, such as migratory birds.

If a permit from the Corps of Engineers is required, the USFWS will be given the opportunity to review the public notice on the proposed action and provide additional comments at that time. Section 404 guidelines require the sequence of avoidance of impacts, minimization of impacts and compensation for unavoidable impacts. When we review the public notice we will request information on alternatives considered, how the project avoided and minimized impacts to aquatic ecosystems, and the compensatory mitigation proposal, if one is required by the Corps.

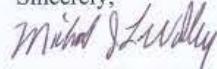
The Migratory Bird Treaty Act prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. Takings could result from projects in prairies, wetlands, stream and woodland habitats, and those that occur on bridges and other structures if swallow or phoebe nests are present. While the provisions of MBTA are applicable year-round, most migratory bird nesting activity in Kansas occurs during the period of April 1 to July 15. However, some migratory birds are known to nest earlier than this (e.g., hawks and owls) and some later (e.g., goldfinches). If the proposed project appears likely to result in the take of migratory birds, I recommend a field survey during the nesting season of the affected habitats and structures to determine the presence of active nests. Our office should be contacted

immediately for further guidance if a field survey identifies the existence of one or more active bird nests that you believe cannot be avoided temporally or spatially by the planned activities.

While the MBTA has no provision for allowing unauthorized take, the USFWS realizes that some birds may be killed during project construction and implementation even if all reasonable measures to protect them are used. The USFWS Office of Law Enforcement carries out its mission to protect migratory birds through investigations and enforcement, as well as by fostering relationships with individuals, companies, and industries that have taken effective steps to minimize their impacts on migratory birds, and by encouraging others to enact such programs. It is not possible to absolve individuals, companies, or agencies from liability even if they implement avian mortality avoidance or similar conservation measures. However, the Office of Law Enforcement focuses its resources on investigating and prosecuting individuals and companies that take migratory birds without regard for their actions or without following recommendations to avoid take.

Thank you for this opportunity to comment on the proposal. If we can be of any assistance, please call Ms. Michele McNulty, of my staff, at 785-539-3474 ext. 106.

Sincerely,



Michael J. LeValley
Field Supervisor

cc: KDWP, Pratt, KS (Environmental Services)

APPENDIX D

EXAMPLE AIR QUALITY EMISSIONS CALCULATIONS

Summary	Summarizes total emissions by calendar year.
Combustion	Estimates emissions from non-road equipment exhaust as well as painting.
Fugitive	Estimates fine particulate emissions from earthmoving, vehicle traffic, and windblown dust
Grading	Estimates the number of days of site preparation, to be used for estimating heavy equipment exhaust and earthmoving dust emissions
AQCR Tier Report	Summarizes total emissions for the South Central Kansas Intrastate AQCR Tier Reports for 2001, to be used to compare project to regional emissions.

Construction Emissions from Proposed Action

CY2007

	NO _x (ton)	VOC (ton)	CO (ton)	SO ₂ (ton)	PM ₁₀ (ton)
Construction Combustion	0.464	0.079	0.667	0.009	0.013
Construction Fugitive Dust	0.000	0.000	0.000	0.000	6.228
TOTAL CY2007	0.464	0.079	0.667	0.009	6.241

Since future year budgets were not readily available, actual 2001 air emissions inventories for the counties were used as an approximation of the regional inventory. Because the Proposed Action is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

South Central Kansas Intrastate AQCR

Year	Point and Area Sources Combined				
	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO ₂ (tpy)	PM ₁₀ (tpy)
2001	30,880	35,204	193,357	8,347	85,279

Source: USEPA-AirData NET Tier Report (<http://www.epa.gov/air/data/geosel.html>). Site visited on 16 November 2006.

Determination Significance (Significance Threshold = 10%) for Construction Activities

Minimum - 2001
2007 Emissions
Proposed Action %

Point and Area Sources Combined					
	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO ₂ (tpy)	PM ₁₀ (tpy)
30,880	35,204	193,357	8,347	85,279	
0.464	0.079	0.667	0.009	6.241	
0.0015%	0.00022%	0.00034%	0.00011%	0.0073%	

Construction Combustion Emissions for CY 2007

Combustion Emissions of VOC, NO_x, SO₂, CO and PM₁₀ Due to Construction

Includes:

100% of Demolish Buildings 1090 and 1091 212,000 ft² 4.87 acres

Total Building Construction Area: 0 ft² (None)
Total Demolished Area: 212,000 ft²
Total Paved Area: 0 ft² (None)
Total Disturbed Area: 212,000 ft²
Construction Duration: 1.0 year(s)
Annual Construction Activity: 230 days/yr

Emission Factors Used for Construction Equipment

Reference: Guide to Air Quality Assessment, SMAQMD, 2004

Emission factors are taken from Table 3-2. Assumptions regarding the type and number of equipment are from Table 3-1 unless otherwise noted.

Grading

Equipment	No. Reqd. ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c	PM ₁₀ (lb/day)
Bulldozer	1	29.40	3.66	25.09	0.59	1.17
Motor Grader	1	10.22	1.76	14.98	0.20	0.28
Water Truck	1	20.89	3.60	30.62	0.42	0.58
Total per 10 acres of activity	3	60.51	9.02	70.69	1.21	2.03

Paving

Equipment	No. Reqd. ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c	PM ₁₀ (lb/day)
Paver	1	7.93	1.37	11.62	0.16	0.22
Roller	1	5.01	0.86	7.34	0.10	0.14
Total per 10 acres of activity	2	12.94	2.23	18.96	0.26	0.36

Demolition

Equipment	No. Reqd. ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c	PM ₁₀ (lb/day)
Loader	1	7.86	1.35	11.52	0.16	0.22
Haul Truck	1	20.89	3.60	30.62	0.42	0.58
Total per 10 acres of activity	2	28.75	4.95	42.14	0.58	0.80

Building Construction

Equipment ^d	No. Reqd. ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c	PM ₁₀ (lb/day)
Stationary						
Generator Set	1	11.83	1.47	10.09	0.24	0.47
Industrial Saw	1	17.02	2.12	14.52	0.34	0.68
Welder	1	4.48	0.56	3.83	0.09	0.18
Mobile (non-road)						
Truck	1	20.89	3.60	30.62	0.84	0.58
Forklift	1	4.57	0.79	6.70	0.18	0.13
Crane	1	8.37	1.44	12.27	0.33	0.23
Total per 10 acres of activity	6	67.16	9.98	78.03	2.02	2.27

Note: Footnotes for tables are on following page

Architectural Coatings

Equipment	No. Reqd. ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c	PM ₁₀ (lb/day)
Air Compressor	1	6.83	0.85	5.82	0.14	0.27
Total per 10 acres of activity	1	6.83	0.85	5.82	0.14	0.27

- a) The SMAQMD 2004 guidance suggests a default equipment fleet for each activity, assuming 10 acres of that activity, (e.g., 10 acres of grading, 10 acres of paving, etc.). The default equipment fleet is increased for each 10 acre increment in the size of the construction project. That is, a 26 acre project would round to 30 acres and the fleet size would be three times the default fleet for a 10 acre project.
- b) The SMAQMD 2004 reference lists emission factors for reactive organic gas (ROG). For the purposes of this worksheet ROG = VOC.
- c) The SMAQMD 2004 reference does not provide SO₂ emission factors. For this worksheet, SO₂ emissions have been estimated based on approximate fuel use rate for diesel equipment and the assumption of 500 ppm sulfur diesel fuel. For the average of the equipment fleet, the resulting SO₂ factor was found to be approximately 0.04 times the NO_x emission factor for the mobile equipment (based upon 2002 USAF IERA "Air Emissions Inventory Guidance") and 0.02 times the NO_x emission factor for all other equipment (based on AP-42, Table 3.4-1)
- d) Typical equipment fleet for building construction was not itemized in SMAQMD 2004 guidance. The equipment list above was assumed based on SMAQMD 1994 guidance.

PROJECT-SPECIFIC EMISSION FACTOR SUMMARY

Source	Equipment Multiplier*	SMAQMD Emission Factors (lb/day)				
		NO _x	VOC	CO	SO ₂ **	PM ₁₀
Grading Equipment	1	29.449	4.390	34.404	0.589	0.988
Paving Equipment	1	0.000	0.000	0.000	0.000	0.000
Demolition Equipment	1	13.992	2.409	20.509	0.280	0.389
Building Construction	1	0.000	0.000	0.000	0.000	0.000
Air Compressor for Architectural Coating	1	0.000	0.000	0.000	0.000	0.000
Architectural Coating**		0.000				

*The equipment multiplier is an integer that represents units of 10 acres for purposes of estimating the number of equipment required for the project

**Emission factor is from the evaporation of solvents during painting, per "Air Quality Thresholds of Significance", SMAQMD, 1994

Example: SMAQMD Emission Factor for Grading Equipment NO_x = (Total Grading NO_x per 10 ac*((total disturbed area/43560)/10))*(Equipment Multiplier)

Summary of Input Parameters

	Total Area (ft ²)	Total Area (acres)	Total Days
Grading:	212,000	4.87	3
Paving:	0	0.00	0
Demolition:	212,000	4.87	60
Building Construction:	0	0.00	0
Architectural Coating	0	0.00	0

(from "CY2007 Grading" worksheet)

(per the SMAQMD "Air Quality of Thresholds of Significance", 1!)

NOTE: The 'Total Days' estimate for paving is calculated by dividing the total number of acres by 0.21 acres/day, which is a factor derived from the 2005 MEANS Heavy Construction Cost Data, 19th Edition, for 'Asphaltic Concrete Pavement, Lots and Driveways - 6" stone base', which provides an estimate of square feet paved per day. There is also an estimate for 'Plain Cement Concrete Pavement', however the estimate for asphalt is used because it is more conservative. The 'Total Days' estimate for demolition is calculated by dividing the total number of acres by 0.02 acres/day, which is a factor also derived from the 2005 MEANS reference. This is calculated by averaging the demolition estimates from 'Building Demolition - Small Buildings, Concrete', assuming a height of 30 feet for a two-story building; from 'Building Footings and Foundations Demolition - 6" Thick, Plain Concrete'; and from 'Demolish, Remove Pavement and Curb - Concrete to 6" thick, rod reinforced'. Paving is double-weighted since projects typically involve more paving demolition. The 'Total Days' estimate for building construction is assumed to be 230 days, unless project-specific data is known.

Total Project Emissions by Activity (lbs)

	NO _x	VOC	CO	SO ₂	PM ₁₀
Grading Equipment	88.35	13.17	103.21	1.77	2.96
Paving	-	-	-	-	-
Demolition	839.53	144.55	1,230.53	16.79	23.36
Building Construction	-	-	-	-	-
Architectural Coatings	-	-	-	-	-
Total Emissions (lbs):	927.88	157.72	1,333.75	18.56	26.32

Results: Total Project Annual Emission Rates

	NO _x	VOC	CO	SO ₂	PM ₁₀
Total Project Emissions (lbs)	927.88	157.72	1,333.75	18.56	26.32
Total Project Emissions (tons)	0.46	0.08	0.67	0.01	0.01

Construction Fugitive Dust Emissions for CY 2007

Calculation of PM₁₀ Emissions Due to Site Preparation (Uncontrolled).

User Input Parameters / Assumptions

Acres graded per year:	4.87 acres/yr	(From "CY2007 Combustion" worksheet)
Grading days/yr:	2.72 days/yr	(From "CY2007 Grading worksheet")
Exposed days/yr:	90 assumed days/yr graded area is exposed	
Grading Hours/day:	8 hr/day	
Soil piles area fraction:	0.10 (assumed fraction of site area covered by soil piles)	
Soil percent silt, s:	8.5 %	(mean silt content; expected range: 0.56 to 23, AP-42 Table 13.2.2-1)
Soil percent moisture, M:	25 %	(http://www.cpc.noaa.gov/products/soilmst/w.shtml)
Annual rainfall days, p:	90 days/yr rainfall exceeds 0.01 inch/day (AP-42 Fig 13.2.2-1)	
Wind speed > 12 mph %, l:	47 %	Ave. of wind speed at Wichita, KS (ftp://ftp.wcc.nrcs.usda.gov/downloads/climate/windrose/kansas/wichita/)
Fraction of TSP, J:	0.5 per California Environmental Quality Act (CEQA) Air Quality Handbook, SCAQMD, 1993, p. A9-99	
Mean vehicle speed, S:	5 mi/hr	(On-site)
Dozer path width:	8 ft	
Qty construction vehicles:	3.00 vehicles	(From "CY2007 Grading worksheet")
On-site VMT/vehicle/day:	5 mi/veh/day	(Excluding bulldozer VMT during grading)
PM ₁₀ Adjustment Factor k	1.5 lb/VMT	(AP-42 Table 13.2.2-2 12/03 for PM ₁₀ for unpaved roads)
PM ₁₀ Adjustment Factor a	0.9 (dimensionless)	(AP-42 Table 13.2.2-2 12/03 for PM ₁₀ for unpaved roads)
PM ₁₀ Adjustment Factor b	0.45 (dimensionless)	(AP-42 Table 13.2.2-2 12/03 for PM ₁₀ for unpaved roads)
Mean Vehicle Weight W	40 tons	assumed for aggregate trucks

TSP - Total Suspended Particulate

VMT - Vehicle Miles Traveled

Emissions Due to Soil Disturbance Activities

Operation Parameters (Calculated from User Inputs)

Grading duration per acre	4.5 hr/acre	
Bulldozer mileage per acre	1 VMT/acre	(Miles traveled by bulldozer during grading)
Construction VMT per day	15 VMT/day	
Construction VMT per acre	8.4 VMT/acre	(Travel on unpaved surfaces within site)

Equations Used (Corrected for PM10)

Operation	Empirical Equation	Units	AP-42 Section (5th Edition)
Bulldozing	$0.75(s^{1.5})/(M^{1.4})$	lbs/hr	Table 11.9-1, Overburden
Grading	$(0.60)(0.051)s^{2.0}$	lbs/VMT	Table 11.9-1,
Vehicle Traffic (unpaved roads)	$[(k(s/12)^a(W/3)^b)] \ [(365-P)/365]$	lbs/VMT	Section 13.2.2

Source: Compilation of Air Pollutant Emission Factors, Vol. I, USEPA AP-42, Section 11.9 dated 10/98 and Section 13.2 dated 12/03

Calculation of PM₁₀ Emission Factors for Each Operation

Operation	Emission Factor (mass/ unit)	Operation Parameter	Emission Factor (lbs/ acre)
Bulldozing	0.21 lbs/hr	4.5 hr/acre	0.90 lbs/acre
Grading	0.77 lbs/VMT	1 VMT/acre	0.80 lbs/acre
Vehicle Traffic (unpaved roads)	2.66 lbs/VMT	8.4 VMT/acre	22.30 lbs/acre

Emissions Due to Wind Erosion of Soil Piles and Exposed Graded Surface

Reference: California Environmental Quality Act (CEQA) Air Quality Handbook, SCAQMD, 1993.

Soil Piles EF = $1.7(s/1.5)[(365 - p)/235](l/15)(J) = (s)(365 - p)(l)(J)/(3110.2941)$, p. A9-99.

Soil Piles EF = 17.7 lbs/day/acre covered by soil piles

Consider soil piles area fraction so that EF applies to graded area

Soil piles area fraction: 0.10 (Fraction of site area covered by soil piles)
Soil Piles EF = 1.77 lbs/day/acres graded

Graded Surface EF = 26.4 lbs/day/acre (recommended in CEQA Manual, p. A9-93).

Calculation of Annual PM₁₀ Emissions

Source	Emission Factor	Graded Acres/yr	Exposed days/yr	Emissions lbs/yr	Emissions tons/yr
Bulldozing	0.90 lbs/acre	4.87	NA	4	0.002
Grading	0.80 lbs/acre	4.87	NA	4	0.002
Vehicle Traffic	22.30 lbs/acre	4.87	NA	109	0.054
Erosion of Soil Piles	1.77 lbs/acre/day	4.87	90	775	0.388
Erosion of Graded Surface	26.40 lbs/acre/day	4.87	90	11,564	5.782
TOTAL				12,456	6.23

Soil Disturbance EF: 24.00 lbs/acre
Wind Erosion EF: 28.17 lbs/acre/day

Back calculate to get EF: 941.50 lbs/acre/grading day

Construction (Grading) Schedule for CY 2007

Estimate of time required to grade a specified area.

Input Parameters

Construction area: 4.87 acres/yr (from "CY2007 Combustion" Worksheet)
 Qty Equipment: 3.00 (calculated based on 3 pieces of equipment for every 10 acres)

Assumptions

Terrain is mostly flat.

An average of 6" soil is excavated from one half of the site and backfilled to the other half of the site; no soil is hauled off-site or borrowed.

200 hp bulldozers are used for site clearing.

300 hp bulldozers are used for stripping, excavation, and backfill.

Vibratory drum rollers are used for compacting.

Stripping, Excavation, Backfill and Compaction require an average of two passes each.

Excavation and Backfill are assumed to involve only half of the site.

Calculation of days required for one piece of equipment to grade the specified area.

Reference: Means Heavy Construction Cost Data, 19th Ed., R. S. Means, 2005.

Means Line No.	Operation	Description	Output	Units	Acres per equip-day	equip-days per acre	Acres/yr (project-specific)	Equip-days per year
2230 200 0550	Site Clearing	Dozer & rake, medium brush	8	acre/day	8	0.13	4.87	0.61
2230 500 0300	Stripping	Topsoil & stockpiling, adverse soil	1,650	cu. yd/day	2.05	0.49	4.87	2.38
2315 432 5220	Excavation	Bulk, open site, common earth, 150' haul	800	cu. yd/day	0.99	1.01	2.43	2.45
2315 120 5220	Backfill	Structural, common earth, 150' haul	1,950	cu. yd/day	2.42	0.41	2.43	1.01
2315 310 5020	Compaction	Vibrating roller, 6 " lifts, 3 passes	2,300	cu. yd/day	2.85	0.35	4.87	1.71
TOTAL								8.15

Calculation of days required for the indicated pieces of equipment to grade the designated acreage.

(Equip)(day)/yr: 8.15
 Qty Equipment: 3.00
 Grading days/yr: 2.72

South Central Kansas Intrastate Air Quality Control Region (SCKI AQCR)

Row #	State	County	Area Source Emissions						Point Source Emissions					
			CO	NOx	PM10	PM2.5	SO2	VOC	CO	NOx	PM10	PM2.5	SO2	VOC
1	KS	Reno Co	20,351	3,503	19,756	3,831	316	4,380	611	2,598	185	148	1,546	818
2	KS	Sedgwick Co	155,728	16,619	42,305	9,190	1,700	25,571	908	4,320	1,338	917	4,531	2,306
3	KS	Sumner Co	15,736	3,757	21,663	4,313	253	2,117	22.6	82.9	31.7	27.8	1.27	12.2
Grand Total			191,815	23,879	83,724	17,334	2,269	32,068	1,542	7,001	1,555	1,093	6,078	3,136

SOURCE:

<http://www.epa.gov/air/data/geosel.html>

USEPA - AirData NET Tier Report

*Net Air pollution sources (area and point) in tons per year (2001)

Site visited on 16 November 2006

SCKI AQCR : Reno Co, Sedgwick Co, and Sumner Co.

Summary	Summarizes total emissions by calendar year.
Combustion	Estimates emissions from non-road equipment exhaust as well as painting.
Fugitive	Estimates fine particulate emissions from earthmoving, vehicle traffic, and windblown dust
Grading	Estimates the number of days of site preparation, to be used for estimating heavy equipment exhaust and earthmoving dust emissions
AQCR Tier Report	Summarizes total emissions for the South Central Kansas Intrastate AQCR Tier Reports for 2001, to be used to compare project to regional emissions.

Construction Emissions from Proposed Action

CY2007

	NO _x (ton)	VOC (ton)	CO (ton)	SO ₂ (ton)	PM ₁₀ (ton)
Construction Combustion	2.462	0.667	2.854	0.074	0.083
Construction Fugitive Dust	0.000	0.000	0.000	0.000	4.013
TOTAL CY2007	2.462	0.667	2.854	0.074	4.096

Since future year budgets were not readily available, actual 2001 air emissions inventories for the counties were used as an approximation of the regional inventory. Because the Proposed Action is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

South Central Kansas Intrastate AQCR

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Source: USEPA-AirData NET Tier Report (<http://www.epa.gov/air/data/geosel.html>). Site visited on 16 November 2006.

Determination Significance (Significance Threshold = 10%) for Construction Activities

Minimum - 2001
2007 Emissions
Proposed Action %

Point and Area Sources Combined					
	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO ₂ (tpy)	PM ₁₀ (tpy)
30,880	35,204	193,357	8,347	85,279	
2.462	0.667	2.854	0.074	4.096	
0.0080%	0.00189%	0.00148%	0.00088%	0.0048%	

Construction Combustion Emissions for CY 2007

Combustion Emissions of VOC, NO_x, SO₂, CO and PM₁₀ Due to Construction

Includes:

Construct Base Civil Engineering Maintenance Complex 136,599 ft² 3.14 acres

Total Building Construction Area:	136,599 ft ²	
Total Demolished Area:	0 ft ²	(None)
Total Paved Area:	0 ft ²	(None)
Total Disturbed Area:	136,599 ft ²	
Construction Duration:	1.0 year(s)	
Annual Construction Activity:	230 days/yr	

Emission Factors Used for Construction Equipment

Reference: Guide to Air Quality Assessment, SMAQMD, 2004

Emission factors are taken from Table 3-2. Assumptions regarding the type and number of equipment are from Table 3-1 unless otherwise noted.

Grading

Equipment	No. Reqd. ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c	PM ₁₀ (lb/day)
Bulldozer	1	29.40	3.66	25.09	0.59	1.17
Motor Grader	1	10.22	1.76	14.98	0.20	0.28
Water Truck	1	20.89	3.60	30.62	0.42	0.58
Total per 10 acres of activity	3	60.51	9.02	70.69	1.21	2.03

Paving

Equipment	No. Reqd. ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c	PM ₁₀ (lb/day)
Paver	1	7.93	1.37	11.62	0.16	0.22
Roller	1	5.01	0.86	7.34	0.10	0.14
Total per 10 acres of activity	2	12.94	2.23	18.96	0.26	0.36

Demolition

Equipment	No. Reqd. ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c	PM ₁₀ (lb/day)
Loader	1	7.86	1.35	11.52	0.16	0.22
Haul Truck	1	20.89	3.60	30.62	0.42	0.58
Total per 10 acres of activity	2	28.75	4.95	42.14	0.58	0.80

Building Construction

Equipment ^d	No. Reqd. ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c	PM ₁₀ (lb/day)
Stationary						
Generator Set	1	11.83	1.47	10.09	0.24	0.47
Industrial Saw	1	17.02	2.12	14.52	0.34	0.68
Welder	1	4.48	0.56	3.83	0.09	0.18
Mobile (non-road)						
Truck	1	20.89	3.60	30.62	0.84	0.58
Forklift	1	4.57	0.79	6.70	0.18	0.13
Crane	1	8.37	1.44	12.27	0.33	0.23
Total per 10 acres of activity	6	67.16	9.98	78.03	2.02	2.27

Note: Footnotes for tables are on following page

Architectural Coatings

Equipment	No. Reqd. ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c	PM ₁₀ (lb/day)
Air Compressor	1	6.83	0.85	5.82	0.14	0.27
Total per 10 acres of activity	1	6.83	0.85	5.82	0.14	0.27

- a) The SMAQMD 2004 guidance suggests a default equipment fleet for each activity, assuming 10 acres of that activity, (e.g., 10 acres of grading, 10 acres of paving, etc.). The default equipment fleet is increased for each 10 acre increment in the size of the construction project. That is, a 26 acre project would round to 30 acres and the fleet size would be three times the default fleet for a 10 acre project.
- b) The SMAQMD 2004 reference lists emission factors for reactive organic gas (ROG). For the purposes of this worksheet ROG = VOC.
- c) The SMAQMD 2004 reference does not provide SO₂ emission factors. For this worksheet, SO₂ emissions have been estimated based on approximate fuel use rate for diesel equipment and the assumption of 500 ppm sulfur diesel fuel. For the average of the equipment fleet, the resulting SO₂ factor was found to be approximately 0.04 times the NO_x emission factor for the mobile equipment (based upon 2002 USAF IERA "Air Emissions Inventory Guidance") and 0.02 times the NO_x emission factor for all other equipment (based on AP-42, Table 3.4-1)
- d) Typical equipment fleet for building construction was not itemized in SMAQMD 2004 guidance. The equipment list above was assumed based on SMAQMD 1994 guidance.

PROJECT-SPECIFIC EMISSION FACTOR SUMMARY

Source	Equipment Multiplier*	SMAQMD Emission Factors (lb/day)				
		NO _x	VOC	CO	SO ₂ **	PM ₁₀
Grading Equipment	1	18.975	2.829	22.168	0.380	0.637
Paving Equipment	1	0.000	0.000	0.000	0.000	0.000
Demolition Equipment	1	0.000	0.000	0.000	0.000	0.000
Building Construction	1	21.061	3.130	24.469	0.633	0.712
Air Compressor for Architectural Coating	1	2.142	0.267	1.825	0.043	0.085
Architectural Coating**		30.122				

*The equipment multiplier is an integer that represents units of 10 acres for purposes of estimating the number of equipment required for the project

**Emission factor is from the evaporation of solvents during painting, per "Air Quality Thresholds of Significance", SMAQMD, 1994

Example: SMAQMD Emission Factor for Grading Equipment NO_x = (Total Grading NO_x per 10 ac*((total disturbed area/43560)/10))*(Equipment Multiplier)

Summary of Input Parameters

	Total Area (ft ²)	Total Area (acres)	Total Days
Grading:	136,599	3.14	2
Paving:	0	0.00	0
Demolition:	0	0.00	60
Building Construction:	136,599	3.14	230
Architectural Coating	136,599	3.14	20

(from "CY2007 Grading" worksheet)

(per the SMAQMD "Air Quality of Thresholds of Significance", 1!)

NOTE: The 'Total Days' estimate for paving is calculated by dividing the total number of acres by 0.21 acres/day, which is a factor derived from the 2005 MEANS Heavy Construction Cost Data, 19th Edition, for 'Asphaltic Concrete Pavement, Lots and Driveways - 6" stone base', which provides an estimate of square feet paved per day. There is also an estimate for 'Plain Cement Concrete Pavement', however the estimate for asphalt is used because it is more conservative. The 'Total Days' estimate for demolition is calculated by dividing the total number of acres by 0.02 acres/day, which is a factor also derived from the 2005 MEANS reference. This is calculated by averaging the demolition estimates from 'Building Demolition - Small Buildings, Concrete', assuming a height of 30 feet for a two-story building; from 'Building Footings and Foundations Demolition - 6" Thick, Plain Concrete'; and from 'Demolish, Remove Pavement and Curb - Concrete to 6" thick, rod reinforced'. Paving is double-weighted since projects typically involve more paving demolition. The 'Total Days' estimate for building construction is assumed to be 230 days, unless project-specific data is known.

Total Project Emissions by Activity (lbs)

	NO _x	VOC	CO	SO ₂	PM ₁₀
Grading Equipment	37.95	5.66	44.34	0.76	1.27
Paving	-	-	-	-	-
Demolition	-	-	-	-	-
Building Construction	4,843.93	719.81	5,627.94	145.68	163.72
Architectural Coatings	42.84	607.77	36.50	0.86	1.69
Total Emissions (lbs):	4,924.72	1,333.23	5,708.77	147.29	166.69

Results: Total Project Annual Emission Rates

	NO _x	VOC	CO	SO ₂	PM ₁₀
Total Project Emissions (lbs)	4,924.72	1,333.23	5,708.77	147.29	166.69
Total Project Emissions (tons)	2.46	0.67	2.85	0.07	0.08

Construction Fugitive Dust Emissions for CY 2007

Calculation of PM₁₀ Emissions Due to Site Preparation (Uncontrolled).

User Input Parameters / Assumptions

Acres graded per year:	3.14 acres/yr	(From "CY2007 Combustion" worksheet)
Grading days/yr:	1.75 days/yr	(From "CY2007 Grading worksheet")
Exposed days/yr:	90 assumed days/yr graded area is exposed	
Grading Hours/day:	8 hr/day	
Soil piles area fraction:	0.10 (assumed fraction of site area covered by soil piles)	
Soil percent silt, s:	8.5 %	(mean silt content; expected range: 0.56 to 23, AP-42 Table 13.2.2-1)
Soil percent moisture, M:	25 %	(http://www.cpc.noaa.gov/products/soilmst/w.shtml)
Annual rainfall days, p:	90 days/yr rainfall exceeds 0.01 inch/day (AP-42 Fig 13.2.2-1)	
Wind speed > 12 mph %, l:	47 %	Ave. of wind speed at Wichita, KS (ftp://ftp.wcc.nrcs.usda.gov/downloads/climate/windrose/kansas/wichita/)
Fraction of TSP, J:	0.5 per California Environmental Quality Act (CEQA) Air Quality Handbook, SCAQMD, 1993, p. A9-99	
Mean vehicle speed, S:	5 mi/hr	(On-site)
Dozer path width:	8 ft	
Qty construction vehicles:	3.00 vehicles	(From "CY2007 Grading worksheet")
On-site VMT/vehicle/day:	5 mi/veh/day	(Excluding bulldozer VMT during grading)
PM ₁₀ Adjustment Factor k	1.5 lb/VMT	(AP-42 Table 13.2.2-2 12/03 for PM ₁₀ for unpaved roads)
PM ₁₀ Adjustment Factor a	0.9 (dimensionless)	(AP-42 Table 13.2.2-2 12/03 for PM ₁₀ for unpaved roads)
PM ₁₀ Adjustment Factor b	0.45 (dimensionless)	(AP-42 Table 13.2.2-2 12/03 for PM ₁₀ for unpaved roads)
Mean Vehicle Weight W	40 tons	assumed for aggregate trucks

TSP - Total Suspended Particulate

VMT - Vehicle Miles Traveled

Emissions Due to Soil Disturbance Activities

Operation Parameters (Calculated from User Inputs)

Grading duration per acre	4.5 hr/acre	
Bulldozer mileage per acre	1 VMT/acre	(Miles traveled by bulldozer during grading)
Construction VMT per day	15 VMT/day	
Construction VMT per acre	8.4 VMT/acre	(Travel on unpaved surfaces within site)

Equations Used (Corrected for PM10)

Operation	Empirical Equation	Units	AP-42 Section (5th Edition)
Bulldozing	$0.75(s^{1.5})/(M^{1.4})$	lbs/hr	Table 11.9-1, Overburden
Grading	$(0.60)(0.051)s^{2.0}$	lbs/VMT	Table 11.9-1,
Vehicle Traffic (unpaved roads)	$[(k(s/12)^a(W/3)^b)] \ [(365-P)/365]$	lbs/VMT	Section 13.2.2

Source: Compilation of Air Pollutant Emission Factors, Vol. I, USEPA AP-42, Section 11.9 dated 10/98 and Section 13.2 dated 12/03

Calculation of PM₁₀ Emission Factors for Each Operation

Operation	Emission Factor (mass/ unit)	Operation Parameter	Emission Factor (lbs/ acre)
Bulldozing	0.21 lbs/hr	4.5 hr/acre	0.90 lbs/acre
Grading	0.77 lbs/VMT	1 VMT/acre	0.80 lbs/acre
Vehicle Traffic (unpaved roads)	2.66 lbs/VMT	8.4 VMT/acre	22.30 lbs/acre

Emissions Due to Wind Erosion of Soil Piles and Exposed Graded Surface

Reference: California Environmental Quality Act (CEQA) Air Quality Handbook, SCAQMD, 1993.

Soil Piles EF = $1.7(s/1.5)[(365 - p)/235](l/15)(J) = (s)(365 - p)(l)(J)/(3110.2941)$, p. A9-99.

Soil Piles EF = 17.7 lbs/day/acre covered by soil piles

Consider soil piles area fraction so that EF applies to graded area

Soil piles area fraction: 0.10 (Fraction of site area covered by soil piles)
Soil Piles EF = 1.77 lbs/day/acres graded

Graded Surface EF = 26.4 lbs/day/acre (recommended in CEQA Manual, p. A9-93).

Calculation of Annual PM₁₀ Emissions

Source	Emission Factor	Graded Acres/yr	Exposed days/yr	Emissions lbs/yr	Emissions tons/yr
Bulldozing	0.90 lbs/acre	3.14	NA	3	0.001
Grading	0.80 lbs/acre	3.14	NA	3	0.001
Vehicle Traffic	22.30 lbs/acre	3.14	NA	70	0.035
Erosion of Soil Piles	1.77 lbs/acre/day	3.14	90	500	0.250
Erosion of Graded Surface	26.40 lbs/acre/day	3.14	90	7,451	3.725
TOTAL				8,026	4.01

Soil Disturbance EF: 24.00 lbs/acre
Wind Erosion EF: 28.17 lbs/acre/day

Back calculate to get EF: 1,461.19 lbs/acre/grading day

Construction (Grading) Schedule for CY 2007

Estimate of time required to grade a specified area.

Input Parameters

Construction area: 3.14 acres/yr (from "CY2007 Combustion" Worksheet)
 Qty Equipment: 3.00 (calculated based on 3 pieces of equipment for every 10 acres)

Assumptions

Terrain is mostly flat.

An average of 6" soil is excavated from one half of the site and backfilled to the other half of the site; no soil is hauled off-site or borrowed.

200 hp bulldozers are used for site clearing.

300 hp bulldozers are used for stripping, excavation, and backfill.

Vibratory drum rollers are used for compacting.

Stripping, Excavation, Backfill and Compaction require an average of two passes each.

Excavation and Backfill are assumed to involve only half of the site.

Calculation of days required for one piece of equipment to grade the specified area.

Reference: Means Heavy Construction Cost Data, 19th Ed., R. S. Means, 2005.

Means Line No.	Operation	Description	Output	Units	Acres per equip-day	equip-days per acre	Acres/yr (project-specific)	Equip-days per year
2230 200 0550	Site Clearing	Dozer & rake, medium brush	8	acre/day	8	0.13	3.14	0.39
2230 500 0300	Stripping	Topsoil & stockpiling, adverse soil	1,650	cu. yd/day	2.05	0.49	3.14	1.53
2315 432 5220	Excavation	Bulk, open site, common earth, 150' haul	800	cu. yd/day	0.99	1.01	1.57	1.58
2315 120 5220	Backfill	Structural, common earth, 150' haul	1,950	cu. yd/day	2.42	0.41	1.57	0.65
2315 310 5020	Compaction	Vibrating roller, 6 " lifts, 3 passes	2,300	cu. yd/day	2.85	0.35	3.14	1.10
TOTAL								5.25

Calculation of days required for the indicated pieces of equipment to grade the designated acreage.

(Equip)(day)/yr: 5.25
 Qty Equipment: 3.00
 Grading days/yr: 1.75

South Central Kansas Intrastate Air Quality Control Region (SCKI AQCR)

Row #	State	County	Area Source Emissions						Point Source Emissions					
			CO	NOx	PM10	PM2.5	SO2	VOC	CO	NOx	PM10	PM2.5	SO2	VOC
1	KS	Reno Co	20,351	3,503	19,756	3,831	316	4,380	611	2,598	185	148	1,546	818
2	KS	Sedgwick Co	155,728	16,619	42,305	9,190	1,700	25,571	908	4,320	1,338	917	4,531	2,306
3	KS	Sumner Co	15,736	3,757	21,663	4,313	253	2,117	22.6	82.9	31.7	27.8	1.27	12.2
Grand Total			191,815	23,879	83,724	17,334	2,269	32,068	1,542	7,001	1,555	1,093	6,078	3,136

SOURCE:

<http://www.epa.gov/air/data/geosel.html>

USEPA - AirData NET Tier Report

*Net Air pollution sources (area and point) in tons per year (2001)

Site visited on 16 November 2006

SCKI AQCR : Reno Co, Sedgwick Co, and Sumner Co.